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#6

Attorney Docket No. 21402-269 (CURA 569)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Guo, *et al.*

ASSIGNEE: CURAGEN CORP.

SERIAL NUMBER: 10/074,978

EXAMINER : Not Yet Assigned

FILING DATE: February 12, 2002

ART UNIT : 1646

FOR: NOVEL HUMAN PROTEINS AND NUCLEIC ACIDS ENCODING  
SAME

Box Sequence  
Commissioner For Patents  
Washington, D.C. 20231

RECEIVED  
FEB 21 2003

TECH CENTER 1600/2900

STATEMENT IN SUPPORT OF COMPUTER READABLE  
FORM SUBMISSION UNDER 37 C.F.R. § 1.821(f)

I hereby state that the content of the paper and computer readable forms of the Sequence Listing, submitted in the above-identified application in accordance with 37 C.F.R. § 1.821(c) and 1.821(e), respectively, are the same. The sequence listing is supported by the specification and references incorporated therein. Therefore, no new matter is added at this time.

Respectfully submitted,

Dated: October 11, 2002

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PATENT TRADEMARK OFFICE

NYC 247833v1



SEQUENCE LISTING

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TECH CENTER 1600/2900

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Guo, Xiaojia (Sasha)  
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Li, Li  
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Liu, Xiahong  
Casman, Stacie  
Boldog, Ferenc  
Patturajan, Meera  
Blalock, Angela  
Ballinger, Robert  
Vernet, Corine  
Tchernev, Velizar T  
Malyankar, Uriel M  
Gusev, Vladimir  
Rastelli, Luca  
Mezes, Peter S  
Ellerman, Karen  
Heyes, Melvin P  
Herrman, John  
Pena, Carol E A  
Shimkets, Richard A  
Taupier Jr, Raymond J  
Moore, Noelle  
Shenoy, Suresh  
Edinger, Shlomit  
Gunther, Erik  
Stone, Dave  
Millet, Isabelle  
Peyman, John  
Smithson, Glennnda

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aatgctgggg taggccagcc ccaggatgcc atcgaaggga gcataatata ggaaggagcc 660
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agtgtcgtat ccgaggatgc ctgtcatgct gccggtgccg taggtgatgg agactgtctc 780
gctggtggac tggtaggtgg aagaatcctc agggttgaag cggttgtggt tgggtgcaggc 840
aagactggag cagtagactg agggcaccca caggttggag gagccggtgt caaagacgac 900
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gcgcctcaag gacttctttc tgatgagggg gaccttgtac atgataagct t 1131

```

&lt;210&gt; 10

&lt;211&gt; 374

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 10

Met Tyr Lys Val Pro Leu Ile Arg Lys Lys Ser Leu Arg Arg Thr Leu  
 1 5 10 15

Ser Glu Arg Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Leu Asn  
 20 25 30



Gly Asp Met Val Val Ser Cys Ser Ala Ile Ser Ser Leu Pro Asp Ile  
 290 295 300

Val Phe Thr Ile Asn Gly Val Gln Tyr Pro Val Pro Pro Ser Ala Tyr  
 305 310 315 320

Ile Leu Gln Ser Glu Gly Ser Cys Ile Ser Gly Phe Gln Gly Met Asn  
 325 330 335

Val Pro Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly Asp Val Phe Ile  
 340 345 350

Arg Gln Tyr Phe Thr Val Phe Asp Arg Ala Asn Asn Gln Val Ser Leu  
 355 360 365

Ala Pro Val Ala Val Asp  
 370

<210> 11

<211> 1131

<212> DNA

<213> Homo sapiens

<400> 11

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 ctggcggatg aagacatcac ccaggatcca aagctctcca gattcgggtg ggagggttcat 120  
 gccctggaag cactgatgc agctcccctc gctctgcagg atgtaggcac tgggtggcac 180  
 ggggtactgg actccattga tgggaagac gatgtcgggc aggctgctga tggctgagca 240  
 gctgaccacc atgtcgccat ctgagttctc gctggctccg atgtcgctct ggatgttggc 300  
 aatggggctg gttggggccg tcagcagaga ggtgccggtg tcaacaatgg cctggcagcc 360  
 ctacgcgcag gcgatggcct ctccgttcat ggtgatgctg tccacggtga tctgccagta 420  
 accctcgacg gtaacaggca cccagttcag acttccagt tagtaagaag agtcaatgcc 480  
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 ctgagaaacc aggcctggg tccagatgtt gtcaaagacg ggtgtggccc cggaggagga 600  
 aatgctgggg taggccagcc ccaggatgtc atcgaaggga gcataatata ggaaggagcc 660  
 aggttccgtc tcgctcaggc cgaagatctg attggtgtca gagatgcctc caacctggac 720  
 agtgtcgtat ccgaggatgc ctgtcatgct gccgggtgcc taggtgatgg agactgtctc 780  
 gctggtggac tggtaggtgg aagaatctc agggttgaag cggttgtggt tgggtgcaggc 840  
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 ggctgggttg aggttgtgct tcttcaggaa gtccttcagc aggccacgct cggacagggg 1080  
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<210> 12

<211> 374

<212> PRT

<213> Homo sapiens

<400> 12

Met	Tyr	Lys	Val	Pro	Leu	Ile	Arg	Lys	Lys	Ser	Leu	Arg	Arg	Thr	Leu	
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Ser	Glu	Arg	Gly	Leu	Leu	Lys	Asp	Phe	Leu	Lys	Lys	His	Asn	Leu	Asn	
			20					25					30			
Pro	Ala	Arg	Lys	Tyr	Phe	Pro	Gln	Trp	Glu	Ala	Pro	Thr	Leu	Val	Asp	
			35				40					45				
Glu	Gln	Pro	Leu	Glu	Asn	Tyr	Leu	Asp	Met	Glu	Tyr	Phe	Gly	Thr	Ile	
			50			55					60					
Gly	Ile	Gly	Thr	Pro	Ala	Gln	Asp	Phe	Thr	Val	Val	Phe	Asp	Thr	Gly	
65					70					75					80	
Ser	Ser	Asn	Leu	Trp	Val	Pro	Ser	Val	Tyr	Cys	Ser	Ser	Leu	Ala	Cys	
				85					90					95		
Thr	Asn	His	Asn	Arg	Phe	Asn	Pro	Glu	Asp	Ser	Ser	Thr	Tyr	Gln	Ser	
			100					105					110			
Thr	Ser	Glu	Thr	Val	Ser	Ile	Thr	Tyr	Gly	Thr	Gly	Ser	Met	Thr	Gly	
			115				120					125				
Ile	Leu	Gly	Tyr	Asp	Thr	Val	Gln	Val	Gly	Gly	Ile	Ser	Asp	Thr	Asn	
			130				135				140					
Gln	Ile	Phe	Gly	Leu	Ser	Glu	Thr	Glu	Pro	Gly	Ser	Phe	Leu	Tyr	Tyr	
145					150					155					160	
Ala	Pro	Phe	Asp	Asp	Ile	Leu	Gly	Leu	Ala	Tyr	Pro	Ser	Ile	Ser	Ser	
				165					170					175		
Ser	Gly	Ala	Thr	Pro	Val	Phe	Asp	Asn	Ile	Trp	Asn	Gln	Gly	Leu	Val	
			180					185					190			
Ser	Gln	Asp	Leu	Phe	Ser	Val	Tyr	Leu	Ser	Ala	Asp	Asp	Gln	Ser	Gly	
			195				200					205				
Ser	Val	Val	Ile	Phe	Gly	Gly	Ile	Asp	Ser	Ser	Tyr	Tyr	Thr	Gly	Ser	
			210			215					220					
Leu	Asn	Trp	Val	Pro	Val	Thr	Val	Glu	Gly	Tyr	Trp	Gln	Ile	Thr	Val	
225					230					235					240	



<213> Homo sapiens

<400> 14

Met Ala Met Val Ile Ile Phe Leu Val Leu Leu Phe Trp Glu Asn Glu  
1 5 10 15

Val Asn Asp Glu Ala Val Met Ser Thr Leu Glu His Leu His Val Asp  
20 25 30

Tyr Pro Gln Asn Asp Val Pro Val Pro Ala Arg Tyr Cys Asn His Met  
35 40 45

Ile Ile Gln Arg Val Ile Arg Glu Pro Asp His Thr Cys Lys Lys Glu  
50 55 60

His Val Phe Ile His Glu Arg Pro Arg Lys Ile Asn Gly Ile Cys Ile  
65 70 75 80

Ser Pro Lys Lys Val Ala Cys Gln Asn Leu Ser Ala Ile Phe Cys Phe  
85 90 95

Gln Ser Glu Thr Lys Phe Lys Met Thr Val Cys Gln Leu Ile Glu Gly  
100 105 110

Thr Arg Tyr Pro Ala Cys Arg Tyr His Tyr Ser Pro Thr Glu Gly Phe  
115 120 125

Val Leu Val Thr Cys Asp Asp Leu Arg Pro Asp Ser Phe  
130 135 140

<210> 15

<211> 1037

<212> DNA

<213> Homo sapiens

<400> 15

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gaagctgggtg atcatcaagc agattccagt ggaacagatg accaaggaag agcggcaggc 180  
agcccagaat gagtgccagg tcctcaagct gctcaaccac cccaatgtca ttgagtacta 240  
cgagaacttc ctggaagaca aagcccttat gaccgccatg gaatatgcac caggcggcac 300  
tctggctgag ttcattcaaa agcgtgttaa ttccctgctg gaggaggaga ccattctgca 360  
cttcttcgtg cagatcctgc ttgcaatgca tcatgtgcac acccacctca tctgcaccg 420  
agacctcaag acccagaaca tcctgcttga caaacaccgc atgggtcgtca agatcgggtga 480  
tttcggcatc tccaagatcc ttagcagcaa gagcaaggcc tacacggtgg tgggtacccc 540  
atgctatatc tcccctgagc tgtgtgaggg caagccctac aaccagaaga gtgacatctg 600  
ggccctgggc tgtgtcctct acgagctggc cagcctcaag agggctttcg aggctgcgaa 660

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cttgccagca ctggtgctga agatcatgag tggcaccttt gcacctatct ctgaccggta 720
cagccctgag cttcgccagc tggtcctgag tctactcagc ctggagcctg cccagcggcc 780
accactcagc cacatcatgg cacagcccct ctgcatccgt gccctcctca acctccacac 840
cgacgtgggc agtgtccgca tgcggaggcc tgtgcaggga cagcgagcgg tcctgggcgg 900
caggggtgtg gcacccagtg ggagcacact ttcgcctctg actgtgtccg ccacagcctg 960
cacctacact ctgtcatctt ttaccattga caccttgac catgatctga aaacacaatg 1020
acttagtcat ctgcaa 1037

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<210> 16
<211> 326
<212> PRT
<213> Homo sapiens

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<400> 16
Met Glu Lys Tyr Glu Arg Ile Arg Val Val Gly Arg Gly Ala Phe Gly
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Ile Val His Leu Cys Leu Arg Lys Ala Asp Gln Lys Leu Val Ile Ile
      20             25             30

Lys Gln Ile Pro Val Glu Gln Met Thr Lys Glu Glu Arg Gln Ala Ala
      35             40             45

Gln Asn Glu Cys Gln Val Leu Lys Leu Leu Asn His Pro Asn Val Ile
      50             55             60

Glu Tyr Tyr Glu Asn Phe Leu Glu Asp Lys Ala Leu Met Thr Ala Met
      65             70             75             80

Glu Tyr Ala Pro Gly Gly Thr Leu Ala Glu Phe Ile Gln Lys Arg Cys
      85             90             95

Asn Ser Leu Leu Glu Glu Glu Thr Ile Leu His Phe Phe Val Gln Ile
      100            105            110

Leu Leu Ala Leu His His Val His Thr His Leu Ile Leu His Arg Asp
      115            120            125

Leu Lys Thr Gln Asn Ile Leu Leu Asp Lys His Arg Met Val Val Lys
      130            135            140

Ile Gly Asp Phe Gly Ile Ser Lys Ile Leu Ser Ser Lys Ser Lys Ala
      145            150            155            160

Tyr Thr Val Val Gly Thr Pro Cys Tyr Ile Ser Pro Glu Leu Cys Glu
      165            170            175

```

Gly Lys Pro Tyr Asn Gln Lys Ser Asp Ile Trp Ala Leu Gly Cys Val  
180 185 190

Leu Tyr Glu Leu Ala Ser Leu Lys Arg Ala Phe Glu Ala Ala Asn Leu  
195 200 205

Pro Ala Leu Val Leu Lys Ile Met Ser Gly Thr Phe Ala Pro Ile Ser  
210 215 220

Asp Arg Tyr Ser Pro Glu Leu Arg Gln Leu Val Leu Ser Leu Leu Ser  
225 230 235 240

Leu Glu Pro Ala Gln Arg Pro Pro Leu Ser His Ile Met Ala Gln Pro  
245 250 255

Leu Cys Ile Arg Ala Leu Leu Asn Leu His Thr Asp Val Gly Ser Val  
260 265 270

Arg Met Arg Arg Pro Val Gln Gly Gln Arg Ala Val Leu Gly Gly Arg  
275 280 285

Val Trp Ala Pro Ser Gly Ser Thr Leu Ser Pro Leu Thr Val Ser Ala  
290 295 300

Thr Ala Cys Thr Tyr Thr Leu Ser Ser Phe Thr Ile Asp Thr Leu His  
305 310 315 320

His Asp Leu Lys Thr Gln  
325

<210> 17

<211> 1591

<212> DNA

<213> Homo sapiens

<400> 17

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gcgcctctcg ccctgcgcgc gcccgctgct ggccagcccc gggcccgga ctcgggcgat 180  
gtccgctcgc agccgcgcgc cctgtttcag tggagcaagt ggaagaagag gatgggctcg 240  
tccatgtcgg cggccaccgc gcggaggccg gtgtttgacg acaaggagga cgtgaacttc 300  
gaccattcc agatccttcg ggccattggg aagggcagct ttggcaagg agtgtgcatt 360  
gtgcagaagc gggacacgga gaagatgtac gccatgaagt acatgaacaa gcagcagtcg 420  
atcgagcgcg acgaggtccg gaatgtcttc cgggagctgg agatcctgca ggagatcgag 480  
catgtcttcc tggatgaacct ctggtattca ttccaagatg aggaggacat gttcatggtg 540  
gtagacctgc ttctgggtgg agacctacgt taccacctgc agcagaacgt gcagttctcc 600  
gaggacacag tgaggctgta catctgcgag atggcactgg ctctggacta cctgcgcggc 660



```

cagcacatca tccacagaga tgtcaagcct gacaacattc tcctggatga gagaggacat 720
gcacacctga ccgacttcaa cattgccacc atcatcaagg acggggagcg ggcgacggca 780
ttagcaggca ccaagccgta catggctccg gagatcttcc actcttttgt caacggcggg 840
accggctact ccttcgaggt ggactggtgg tcggtggggg tgatggccta tgagctgctg 900
cgaggatgga ggccctatga catccactcc agcaacgccg tggagtccct ggtgcagctg 960
ttcagcaccg tgagcgtcca gtatgtcccc acgtggtcca aggagatggt gggcttgctg 1020
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gcagccccgg cgtgggccgg cgtgctgtgg gaccacctga gcgagaagag ggtggagccg 1140
ggcttcgtgc ccaacaaagg ccgtctgcac tgcgacccca cctttgagct ggaggagatg 1200
atcctggagt ccaggccccct gcacaagaag aagaagcgcc tggccaagaa caagtcccgg 1260
gacaacagca gggacagctc ccagtccgag aatgactatc ttcaagactg cctcgatgcc 1320
atccagcaag acttcgtgat ttttaacaga gaaaagctga agaggagcca ggacctcccg 1380
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gaacgctccg ccctgcccac gtgcggcccc atttgcccct cggccgggag cggctaggcc 1500
gggacgcccg tggctctcac cccttgagct gctttggaga ctcggtgcc agagggaggg 1560
ccatgggccc aggcctggca ttcacgttcc c 1591

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<210> 18

<211> 488

<212> PRT

<213> Homo sapiens

<400> 18

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Met Arg Ser Gly Ala Glu Arg Arg Gly Ser Ser Ala Ala Ala Ser Pro
  1             5             10             15

```

```

Gly Ser Pro Pro Pro Gly Arg Ala Arg Pro Ala Gly Ser Asp Ala Pro
             20             25             30

```

```

Ser Ala Leu Pro Pro Pro Ala Ala Gly Gln Pro Arg Ala Arg Asp Ser
             35             40             45

```

```

Gly Asp Val Arg Ser Gln Pro Arg Pro Leu Phe Gln Trp Ser Lys Trp
             50             55             60

```

```

Lys Lys Arg Met Gly Ser Ser Met Ser Ala Ala Thr Ala Arg Arg Pro
             65             70             75             80

```

```

Val Phe Asp Asp Lys Glu Asp Val Asn Phe Asp His Phe Gln Ile Leu
             85             90             95

```

```

Arg Ala Ile Gly Lys Gly Ser Phe Gly Lys Val Val Cys Ile Val Gln
             100            105            110

```

```

Lys Arg Asp Thr Glu Lys Met Tyr Ala Met Lys Tyr Met Asn Lys Gln
             115            120            125

```

Gln	Cys	Ile	Glu	Arg	Asp	Glu	Val	Arg	Asn	Val	Phe	Arg	Glu	Leu	Glu	130	135	140	
Ile	Leu	Gln	Glu	Ile	Glu	His	Val	Phe	Leu	Val	Asn	Leu	Trp	Tyr	Ser	145	150	155	160
Phe	Gln	Asp	Glu	Glu	Asp	Met	Phe	Met	Val	Val	Asp	Leu	Leu	Leu	Gly	165	170	175	
Gly	Asp	Leu	Arg	Tyr	His	Leu	Gln	Gln	Asn	Val	Gln	Phe	Ser	Glu	Asp	180	185	190	
Thr	Val	Arg	Leu	Tyr	Ile	Cys	Glu	Met	Ala	Leu	Ala	Leu	Asp	Tyr	Leu	195	200	205	
Arg	Gly	Gln	His	Ile	Ile	His	Arg	Asp	Val	Lys	Pro	Asp	Asn	Ile	Leu	210	215	220	
Leu	Asp	Glu	Arg	Gly	His	Ala	His	Leu	Thr	Asp	Phe	Asn	Ile	Ala	Thr	225	230	235	240
Ile	Ile	Lys	Asp	Gly	Glu	Arg	Ala	Thr	Ala	Leu	Ala	Gly	Thr	Lys	Pro	245	250	255	
Tyr	Met	Ala	Pro	Glu	Ile	Phe	His	Ser	Phe	Val	Asn	Gly	Gly	Thr	Gly	260	265	270	
Tyr	Ser	Phe	Glu	Val	Asp	Trp	Trp	Ser	Val	Gly	Val	Met	Ala	Tyr	Glu	275	280	285	
Leu	Leu	Arg	Gly	Trp	Arg	Pro	Tyr	Asp	Ile	His	Ser	Ser	Asn	Ala	Val	290	295	300	
Glu	Ser	Leu	Val	Gln	Leu	Phe	Ser	Thr	Val	Ser	Val	Gln	Tyr	Val	Pro	305	310	315	320
Thr	Trp	Ser	Lys	Glu	Met	Val	Gly	Leu	Leu	Arg	Lys	Val	Leu	Leu	Thr	325	330	335	
Val	Asn	Pro	Glu	His	Arg	Leu	Ser	Ser	Leu	Gln	Asp	Val	Gln	Ala	Ala	340	345	350	
Pro	Ala	Leu	Ala	Gly	Val	Leu	Trp	Asp	His	Leu	Ser	Glu	Lys	Arg	Val	355	360	365	
Glu	Pro	Gly	Phe	Val	Pro	Asn	Lys	Gly	Arg	Leu	His	Cys	Asp	Pro	Thr	370	375	380	

Phe Glu Leu Glu Glu Met Ile Leu Glu Ser Arg Pro Leu His Lys Lys  
 385 390 395 400

Lys Lys Arg Leu Ala Lys Asn Lys Ser Arg Asp Asn Ser Arg Asp Ser  
 405 410 415

Ser Gln Ser Glu Asn Asp Tyr Leu Gln Asp Cys Leu Asp Ala Ile Gln  
 420 425 430

Gln Asp Phe Val Ile Phe Asn Arg Glu Lys Leu Lys Arg Ser Gln Asp  
 435 440 445

Leu Pro Arg Glu Pro Leu Pro Ala Pro Glu Ser Arg Asp Ala Ala Glu  
 450 455 460

Pro Val Glu Asp Glu Ala Glu Arg Ser Ala Leu Pro Met Cys Gly Pro  
 465 470 475 480

Ile Cys Pro Ser Ala Gly Ser Gly  
 485

<210> 19  
 <211> 581  
 <212> DNA  
 <213> Homo sapiens

<400> 19  
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 agctcccaaa gttggcaggg acctggtact ccatggccat ggtggccagt gacttctccc 180  
 tcttgagac cgtggaggcc cctctgaggg tcaacatcac ctgctgtgg cccacccccg 240  
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 tggggatgac agccaggacc ctagaggcag acgacaaggt catggaggaa ttcatcagct 480  
 ttctcaggac cctgcccgtg cacatgtgga tcttctctgga cgttaccag gcggaacagt 540  
 gccgcgtcta gatgagctcc tgctcagtc tgcctcctgg g 581

<210> 20  
 <211> 171  
 <212> PRT  
 <213> Homo sapiens

<400> 20  
 Met Gln Cys Leu Leu Leu Thr Leu Ser Met Ala Leu Val Cys Ala Ile  
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Gln Ala Arg Asp Ile Pro Gln Thr Lys Gln Asp Val Glu Leu Pro Lys  
20 25 30

Leu Ala Gly Thr Trp Tyr Ser Met Ala Met Val Ala Ser Asp Phe Ser  
35 40 45

Leu Leu Glu Thr Val Glu Ala Pro Leu Arg Val Asn Ile Thr Ser Leu  
50 55 60

Trp Pro Thr Pro Glu Gly Asn Leu Glu Ile Ile Leu His Arg Trp Glu  
65 70 75 80

His His Arg Cys Val Glu Arg Thr Val Leu Ala Gln Lys Thr Glu Asp  
85 90 95

Pro Ala Val Phe Met Val Asp Arg Ser Arg Ser Tyr Val Phe Phe Cys  
100 105 110

Met Gly Thr Thr Thr Pro Ser Ala Asp His His Thr Met Cys Gln Tyr  
115 120 125

Leu Gly Met Thr Ala Arg Thr Leu Glu Ala Asp Asp Lys Val Met Glu  
130 135 140

Glu Phe Ile Ser Phe Leu Arg Thr Leu Pro Val His Met Trp Ile Phe  
145 150 155 160

Leu Asp Val Thr Gln Ala Glu Gln Cys Arg Val  
165 170

<210> 21

<211> 4718

<212> DNA

<213> Homo sapiens

<400> 21

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caagcacagc ccactcctca gtaccggttc cggaagagag acaaagtgat gttttacggc 180  
cggaagatca tgaggaaggt gaccacactc cccaacaccc ttgtggagaa cactgccctg 240  
ccccggcagc gggccaggaa gaggaccaag gtgctgtctt tggccaagag gattctgcgt 300  
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gccgggagag caatatacag gcagggggac aagtcgact gcacgtacat catgctcagc 2040  
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<210> 22

<211> 1419

<212> PRT

<213> Homo sapiens

<400> 22

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Gly Ala Leu Leu Ala Leu Ala Leu Val Gly Val Leu Ile Leu Phe Met
      20                      25                     30

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Phe Arg Arg Leu Arg Gln Phe Arg Gln Ala Gln Pro Thr Pro Gln Tyr
      35                      40                     45

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Arg Phe Arg Lys Arg Asp Lys Val Met Phe Tyr Gly Arg Lys Ile Met
      50                      55                     60

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Arg Lys Val Thr Thr Leu Pro Asn Thr Leu Val Glu Asn Thr Ala Leu
      65                      70                     75                     80

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Pro Arg Gln Arg Ala Arg Lys Arg Thr Lys Val Leu Ser Leu Ala Lys
      85                      90                     95

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Arg Ile Leu Arg Phe Lys Lys Glu Tyr Pro Ala Leu Gln Pro Lys Glu

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Asn Ser His Leu Pro Ser Glu Val Leu Tyr Met Leu Lys Asn Val Arg		
130	135	140
Val Leu Gly His Phe Glu Lys Pro Leu Phe Leu Glu Leu Cys Lys His		
145	150	155
Ile Val Phe Val Gln Leu Gln Glu Gly Glu His Val Phe Gln Pro Arg		
165	170	175
Glu Pro Asp Pro Ser Ile Cys Val Val Gln Asp Gly Arg Leu Glu Val		
180	185	190
Cys Ile Gln Asp Thr Asp Gly Thr Glu Val Val Val Lys Glu Val Leu		
195	200	205
Ala Gly Asp Ser Val His Ser Leu Leu Ser Ile Leu Asp Ile Ile Thr		
210	215	220
Gly His Ala Ala Pro Tyr Lys Thr Val Ser Val Arg Ala Ala Ile Pro		
225	230	235
Ser Thr Ile Leu Arg Leu Pro Ala Ala Ala Phe His Gly Val Phe Glu		
245	250	255
Lys Tyr Pro Glu Thr Leu Val Arg Val Val Gln Leu Gln Ile Ile Met		
260	265	270
Val Arg Leu Gln Arg Val Thr Phe Leu Ala Leu His Asn Tyr Leu Gly		
275	280	285
Leu Thr Thr Glu Leu Phe Asn Ala Glu Ser Gln Ala Ile Pro Leu Val		
290	295	300
Ser Val Ala Ser Val Ala Ala Gly Lys Ala Lys Lys Gln Val Phe Tyr		
305	310	315
Gly Glu Glu Glu Arg Leu Lys Lys Pro Pro Arg Leu His Glu Ser Cys		
325	330	335
Asp Ser Ala Asp His Gly Gly Gly Arg Pro Ala Ala Ala Gly Pro Leu		
340	345	350
Leu Lys Arg Ser His Ser Val Pro Ala Pro Ser Ile Arg Lys Gln Ile		

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Leu Glu Glu Leu Glu Lys	Pro Gly Ala Gly Asp	Pro Asp Pro Ser Ala		
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Pro Gln Gly Gly Pro Gly Ser Ala Thr Ser Asp	Leu Gly Met Ala Cys			
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Asp Arg Ala Arg Val Phe Leu His Ser Asp Glu His Pro Gly Ser Ser				
	405	410		415
Val Ala Ser Lys Ser Arg Lys Ser Val Met Val Ala Glu Ile Pro Ser				
	420	425		430
Thr Val Ser Gln His Ser Glu Ser His Thr Asp Glu Thr Leu Ala Ser				
	435	440		445
Arg Lys Ser Asp Ala Ile Phe Arg Ala Ala Lys Lys Asp Leu Leu Thr				
	450	455		460
Leu Met Lys Leu Glu Asp Ser Ser Leu Leu Asp Gly Arg Val Ala Leu				
	465	470		475
Leu His Val Pro Ala Cys Thr Val Val Ser Met Gln Gly Asp Gln Asp				
	485	490		495
Ala Ser Ile Leu Phe Val Val Leu Gly Leu Leu His Val Tyr Gln Arg				
	500	505		510
Lys Ile Cys Ser Gln Glu Asp Thr Cys Leu Phe Ser Arg Ala Pro Gly				
	515	520		525
Asp Ser Ser Leu Leu Asp Gly Arg Val Ala Leu Leu His Val Pro Ala				
	530	535		540
Gly Thr Val Val Ser Arg Gln Gly Asp Gln Asp Ala Ser Ile Leu Phe				
	545	550		555
Val Val Ser Gly Leu Leu His Val Tyr Gln Arg Lys Ile Gly Ser Gln				
	565	570		575
Glu Asp Thr Cys Leu Phe Leu Thr Arg Pro Gly Glu Met Val Gly Gln				
	580	585		590
Leu Ala Val Leu Thr Gly Glu Pro Leu Ile Phe Thr Val Lys Ala Asn				
	595	600		605
Arg Asp Cys Ser Phe Leu Ser Ile Ser Lys Ala His Phe Tyr Glu Ile				





865		870		875		880
Asp Cys Ile Leu Ile Val Gly Leu Gly Asp Gln Glu Pro Thr Val Gly						
	885		890		895	
Glu Leu Glu Arg Met Leu Glu Ser Thr Ala Val Arg Ala Gln Lys Gln						
	900		905		910	
Leu Ile Leu Leu His Arg Glu Glu Gly Pro Ala Pro Ala Arg Thr Val						
	915		920		925	
Glu Trp Leu Asn Met Arg Ser Trp Cys Ser Gly His Leu His Leu Cys						
	930		935		940	
Cys Pro Arg Arg Val Phe Ser Arg Arg Ser Leu Pro Lys Leu Val Glu						
945		950		955		960
Met Tyr Lys His Val Phe Gln Arg Pro Pro Asp Arg His Ser Asp Phe						
	965		970		975	
Ser Arg Leu Ala Arg Val Leu Thr Gly Asn Ala Ile Ala Leu Val Leu						
	980		985		990	
Gly Gly Gly Gly Ala Ser Met Thr Ser Leu Met Lys Ala Ala Leu Asp						
	995		1000		1005	
Leu Thr Tyr Pro Ile Thr Ser Met Phe Ser Gly Ala Gly Phe Asn Ser						
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Ser Ile Phe Ser Val Phe Lys Asp Gln Gln Ile Glu Asp Leu Trp Ile						
1025		1030		1035		1040
Pro Tyr Phe Ala Ile Thr Thr Asp Ile Thr Ala Ser Ala Met Arg Val						
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His Thr Asp Gly Ser Leu Trp Trp Tyr Val Arg Ala Ser Met Ser Leu						
	1060		1065		1070	
Ser Gly Tyr Met Pro Pro Leu Cys Asp Pro Lys Asp Gly His Leu Leu						
	1075		1080		1085	
Met Asp Gly Gly Tyr Ile Asn Asn Leu Pro Ala Ala Ser Ala Pro Arg						
1090		1095		1100		
Ser Leu Gly Trp Asn Thr Phe Ser Leu Glu Tyr Ala Lys Gly Lys Cys						
1105		1110		1115		1120
Gln Ala Gly Ile Arg Ala Pro Arg Thr Cys Thr Arg Val Tyr Met His						

1125	1130	1135
Thr Gln Ala Pro Ala Ala Cys Ala Pro Ala Tyr Gly Pro Val Cys Gln		
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Leu Ser Ser Met Gln Asn Lys Gly Gln Val Glu Glu Leu Gly Ala Ile		
1155	1160	1165
Lys Pro His Leu Cys Pro Gln Ser Glu Thr Asn Ser Leu Gln Gly Val		
1170	1175	1180
Thr Arg Ala Gly Phe Ser Leu Ala Asp Val Ala Arg Ser Met Gly Ala		
1185	1190	1195
Lys Val Val Ile Ala Ile Asp Val Gly Ser Arg Asp Glu Thr Asp Leu		
1205	1210	1215
Thr Asn Tyr Gly Asp Ala Leu Ser Gly Trp Trp Leu Leu Trp Lys Arg		
1220	1225	1230
Trp Asn Pro Leu Ala Thr Lys Val Lys Val Leu Asn Met Ala Glu Ile		
1235	1240	1245
Gln Thr Arg Leu Ala Tyr Val Cys Cys Val Arg Gln Leu Glu Val Val		
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Lys Ser Ser Asp Tyr Cys Glu Tyr Leu Arg Pro Pro Ile Asp Ser Tyr		
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Ser Thr Leu Asp Phe Gly Lys Phe Asn Glu Ile Cys Glu Val Gly Tyr		
1285	1290	1295
Gln His Gly Arg Thr Val Phe Asp Ile Trp Gly Arg Ser Gly Val Leu		
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Glu Lys Met Leu Arg Asp Gln Gln Gly Pro Ser Lys Lys Pro Ala Ser		
1315	1320	1325
Ala Val Leu Thr Cys Pro Asn Ala Ser Phe Thr Asp Leu Ala Glu Ile		
1330	1335	1340
Val Ser Arg Ile Glu Pro Ala Lys Pro Ala Met Val Asp Asp Glu Ser		
1345	1350	1355
Asp Tyr Gln Thr Glu Tyr Glu Glu Glu Leu Leu Asp Val Pro Arg Asp		
1365	1370	1375
Ala Tyr Ala Asp Phe Gln Ser Thr Ser Ala Gln Gln Gly Ser Asp Leu		

1380                      1385                      1390  
 Glu Asp Glu Ser Ser Leu Arg His Arg His Pro Ser Leu Ala Phe Pro  
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 Lys Leu Ser Glu Gly Ser Ser Asp Gln Asp Gly  
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 <212> DNA  
 <213> Homo sapiens

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 <211> 212  
 <212> PRT  
 <213> Homo sapiens

<400> 24  
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                           20                      25                      30  
 Gly Phe Ser Ala Glu Asp Tyr Arg Glu Leu Glu Arg Leu Ala Leu Gln  
                           35                      40                      45  
 Ala Glu Pro His Arg Ala Gly Arg Gln Trp Lys Phe Pro Gly Ser Phe  
           50                      55                      60

Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Glu Tyr Gly His Ala Ala  
65 70 75 80

Pro Gly Thr Asp Ser Gly Lys Val Phe Cys Met Phe Tyr Ala Leu Leu  
85 90 95

Gly Ile Pro Leu Thr Leu Val Thr Phe Gln Ser Leu Gly Glu Arg Leu  
100 105 110

Asn Ala Val Val Arg Arg Leu Leu Leu Ala Ala Lys Cys Cys Leu Gly  
115 120 125

Leu Arg Trp Thr Cys Val Ser Thr Glu Asn Leu Val Val Ala Gly Leu  
130 135 140

Leu Ala Cys Ala Ala Thr Leu Ala Leu Gly Ala Val Ala Phe Ser His  
145 150 155 160

Phe Glu Gly Trp Thr Phe Phe His Ala Tyr Tyr Tyr Cys Phe Ile Thr  
165 170 175

Leu Thr Thr Ile Gly Phe Gly Asp Asn Leu Gly Phe Ser Pro Pro Ser  
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Ser Pro Gly Val Val Arg Gly Gly Gln Ala Pro Arg Leu Gly Ala Arg  
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Trp Lys Ser Ile  
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<211> 711

<212> DNA

<213> Homo sapiens

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<210> 26  
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 <212> PRT  
 <213> Homo sapiens

<400> 26

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Asp	Phe	Ala	Glu	Arg	His	Gly	Tyr	Ile	Lys	Gly	Ile	Val	Lys	Ala	Gln	35	40	45	
Leu	Asn	Ile	Gly	Asn	Val	Leu	Pro	Val	Gly	Thr	Met	Pro	Glu	Gly	Thr	50	55	60	
Ile	Val	Cys	Cys	Leu	Glu	Glu	Lys	Pro	Gly	Asp	Arg	Gly	Lys	Leu	Ala	65	70	75	80
Arg	Ala	Ser	Gly	Asn	Tyr	Ala	Thr	Val	Ile	Ser	His	Asn	Pro	Glu	Thr	85	90	95	
Lys	Lys	Thr	Arg	Val	Lys	Leu	Pro	Ser	Gly	Ser	Lys	Lys	Val	Ile	Ser	100	105	110	
Ser	Ala	Asn	Arg	Ala	Val	Val	Gly	Val	Val	Ala	Gly	Gly	Gly	Arg	Ile	115	120	125	
Asp	Lys	Pro	Ile	Leu	Lys	Ala	Gly	Arg	Ala	Tyr	His	Lys	Tyr	Lys	Ala	130	135	140	
Lys	Arg	Asn	Cys	Trp	Pro	Arg	Val	Arg	Gly	Val	Ala	Met	Asn	Pro	Val	145	150	155	160
Glu	His	Pro	Phe	Gly	Gly	Gly	Asn	His	Gln	His	Ile	Gly	Lys	Pro	Ser	165	170	175	
Thr	Ile	Arg	Arg	Asp	Ala	Pro	Ala	Gly	Arg	Lys	Val	Gly	Leu	Ile	Ala	180	185	190	
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Glu Asn  
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<210> 27  
<211> 1503  
<212> DNA  
<213> Homo sapiens

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agg 1503

<210> 28  
<211> 494  
<212> PRT  
<213> Homo sapiens

<400> 28  
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Gly Leu Leu Gln Gly Ala Ser Leu Leu Ser Leu Leu Leu Leu Leu Leu  
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Lys Ala Ala Gln Pro Tyr Leu Arg Arg Gln Arg Leu Leu Arg Asp Leu  
 35 40 45

Arg Pro Phe Pro Ala Pro Pro Thr His Trp Phe Leu Gly His Lys Leu  
 50 55 60

Met Glu Lys Tyr Pro Cys Ala Val Pro Leu Trp Val Gly Pro Phe Thr  
 65 70 75 80

Met Phe Phe Ser Val His Asp Pro Asp Tyr Ala Lys Ile Leu Leu Lys  
 85 90 95

Arg Gln Gly Lys Asn Gln Glu Gly Phe Leu Pro Phe Ile Ser Gln Gly  
 100 105 110

Lys Gly Leu Ala Ala Leu Asp Gly Pro Lys Trp Phe Gln His Arg Arg  
 115 120 125

Leu Leu Thr Pro Gly Phe His Phe Asn Ile Leu Lys Ala Tyr Ile Glu  
 130 135 140

Val Met Ala His Ser Val Lys Met Met Leu Asn Lys Trp Glu Glu His  
 145 150 155 160

Ile Ala Gln Asn Ser Arg Leu Glu Leu Phe Gln His Val Ser Leu Met  
 165 170 175

Thr Leu Asp Ser Ile Met Lys Cys Ala Phe Ser His Gln Gly Ser Ile  
 180 185 190

Gln Leu Asp Arg Ser Ser Tyr Leu Lys Ala Val Phe Asn Leu Ser Lys  
 195 200 205

Ile Ser Asn Gln Arg Met Asn Asn Phe Leu His His Asn Asp Leu Val  
 210 215 220

Phe Lys Phe Ser Ser Gln Gly Gln Ile Phe Ser Lys Phe Asn Gln Glu  
 225 230 235 240

Leu His Gln His Leu Glu Lys Val Ile Gln Asp Arg Lys Glu Ser Leu  
 245 250 255

Lys Asp Lys Leu Lys Gln Asp Thr Thr Gln Lys Arg Arg Trp Asp Phe  
 260 265 270



Leu Asp Ile Leu Leu Ser Ala Lys Val Glu Asn Thr Lys Asp Phe Ser  
 275 280 285  
 Glu Ala Asp Leu Gln Ala Glu Val Lys Thr Phe Met Phe Ala Gly His  
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 Asp Thr Thr Ser Ser Ala Ile Ser Trp Ile Leu Tyr Cys Leu Ala Lys  
 305 310 315 320  
 Tyr Pro Glu His Gln Gln Arg Cys Arg Asp Glu Ile Arg Glu Leu Leu  
 325 330 335  
 Gly Asp Gly Ser Ser Ile Thr Trp His Leu Ser Gln Met Pro Tyr Thr  
 340 345 350  
 Thr Met Cys Ile Lys Glu Cys Leu Arg Leu Tyr Ala Pro Val Val Asn  
 355 360 365  
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 370 375 380  
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 385 390 395 400  
 Asn Pro Ala Val Trp Lys Asn Val Gln Val Phe Asp Pro Leu Arg Phe  
 405 410 415  
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 420 425 430  
 Ser Ala Gly Ser Arg Asn Cys Ile Gly Gln Glu Phe Ala Met Ile Glu  
 435 440 445  
 Leu Lys Val Thr Ile Ala Leu Ile Leu Leu His Phe Arg Val Thr Pro  
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 Asp Pro Thr Arg Pro Leu Thr Phe Pro Asn His Phe Ile Leu Lys Pro  
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 Lys Asn Gly Met Tyr Leu His Leu Lys Lys Leu Ser Glu Cys  
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<210> 29

<211> 1408

<212> DNA

<213> Homo sapiens

<400> 29

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gtgcgtacct gcacctgggc gccgtgacat cccctgtgtg cacagcccgc gtgctgcagc 240
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agggcacctt ctgcatggac gcctggggct tctgcttcgc cgtctctgcg ctggtggtgg 360
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ccttcgccat gctggccacc ctgctatgcg cgacggctgc ggtcctgtat ccgctgtact 480
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ccctgcctct ggaccagcag tctcttct 1408
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<210> 30

<211> 344

<212> PRT

<213> Homo sapiens

<400> 30

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Met Gly Ser Thr Met Glu Pro Pro Gly Gly Ala Tyr Leu His Leu Gly
  1                      5                      10                     15
```

```
Ala Val Thr Ser Pro Val Cys Thr Ala Arg Val Leu Gln Leu Ala Phe
                20                      25                     30
```

```
Gly Cys Thr Thr Phe Ser Leu Val Ala His Arg Gly Gly Phe Ala Gly
                35                      40                     45
```

```
Val Gln Gly Thr Phe Cys Met Asp Ala Trp Gly Phe Cys Phe Ala Val
                50                      55                     60
```

```
Ser Ala Leu Val Val Ala Cys Glu Phe Thr Arg Leu His Gly Cys Leu
                65                      70                     75                     80
```

Arg Leu Ser Trp Gly Asn Phe Thr Ala Ala Phe Ala Met Leu Ala Thr  
 85 90 95  
 Leu Leu Cys Ala Thr Ala Ala Val Leu Tyr Pro Leu Tyr Phe Ala Arg  
 100 105 110  
 Arg Glu Cys Ser Pro Glu Pro Ala Gly Cys Ala Ala Arg Asp Phe Arg  
 115 120 125  
 Leu Ala Ala Ser Val Phe Ala Gly Leu Leu Phe Leu Ala Tyr Ala Val  
 130 135 140  
 Glu Val Ala Leu Thr Arg Ala Arg Pro Gly Gln Val Ser Ser Tyr Met  
 145 150 155 160  
 Ala Thr Val Ser Gly Leu Leu Lys Ile Val Gln Ala Phe Val Ala Cys  
 165 170 175  
 Ile Ile Phe Gly Ala Leu Val His Asp Ser Arg Tyr Gly Arg Tyr Val  
 180 185 190  
 Ala Thr Gln Trp Cys Val Ala Val Tyr Ser Leu Cys Phe Leu Ala Thr  
 195 200 205  
 Val Ala Val Val Ala Leu Ser Val Met Gly His Thr Gly Gly Leu Gly  
 210 215 220  
 Cys Pro Phe Asp Arg Leu Val Val Val Tyr Thr Phe Leu Ala Val Leu  
 225 230 235 240  
 Leu Tyr Leu Ser Ala Ala Val Ile Trp Pro Val Phe Cys Phe Asp Pro  
 245 250 255  
 Lys Tyr Gly Glu Pro Lys Arg Pro Pro Asn Cys Ala Arg Gly Ser Cys  
 260 265 270  
 Pro Trp Asp Thr Ser Trp Trp Trp Pro Ser Ser Pro Thr Ser Thr Cys  
 275 280 285  
 Ser Cys Thr Ser Leu Thr Ser Pro Thr Pro Ser Phe Ser Ser Ala Arg  
 290 295 300  
 Arg Ala Ser Val His Cys Gly His Leu Trp His Trp Glu Gly Ala Arg  
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 Leu Arg Ala Ala Ala Gly His Arg Ile Trp Val Leu Leu Ala Ser Ala  
 325 330 335

Gln Gly Ser Ser Cys Arg Asn Ser  
340

<210> 31  
<211> 1113  
<212> DNA  
<213> Homo sapiens

<400> 31  
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gccccgaaga actatcaggt tctgttgga aacatccaac tgtatcatca aaccagcac 540  
accagaaga tgtctgtgca ccggatcatc accatccag actttgagaa gctccacccc 600  
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<210> 32  
<211> 356  
<212> PRT  
<213> Homo sapiens

<400> 32  
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Leu Asp Met Gly Tyr Cys Gln Gly Val Ser Gln Val Ala Val Val Leu  
35 40 45  
Leu Met Phe Pro Lys Glu Lys Glu Ala Phe Leu Ala Leu Ala Gln Leu  
50 55 60

Leu	Thr	Ser	Lys	Asn	Leu	Pro	Asp	Thr	Val	Asp	Gly	Gln	Leu	Pro	Met	
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Gly	Pro	His	Ser	Arg	Ala	Ser	Gln	Val	Ala	Pro	Glu	Thr	Thr	Ser	Ser	
				85					90					95		
Lys	Val	Asp	Arg	Gly	Val	Ser	Thr	Val	Cys	Gly	Lys	Pro	Lys	Val	Val	
			100					105					110			
Gly	Lys	Ile	Tyr	Gly	Gly	Arg	Asp	Ala	Ala	Ala	Gly	Gln	Trp	Pro	Trp	
		115					120					125				
Gln	Ala	Ser	Leu	Leu	Tyr	Trp	Gly	Ser	His	Leu	Cys	Gly	Ala	Val	Leu	
	130					135					140					
Ile	Asp	Ser	Cys	Trp	Leu	Val	Ser	Thr	Thr	His	Cys	Phe	Lys	Ser	Gln	
145					150					155					160	
Ala	Pro	Lys	Asn	Tyr	Gln	Val	Leu	Leu	Gly	Asn	Ile	Gln	Leu	Tyr	His	
				165					170					175		
Gln	Thr	Gln	His	Thr	Gln	Lys	Met	Ser	Val	His	Arg	Ile	Ile	Thr	His	
			180					185					190			
Pro	Asp	Phe	Glu	Lys	Leu	His	Pro	Phe	Gly	Ser	Asp	Ile	Ala	Met	Leu	
		195					200					205				
Gln	Leu	His	Leu	Pro	Met	Asn	Phe	Thr	Ser	Tyr	Ile	Val	Pro	Val	Cys	
	210					215					220					
Leu	Pro	Ser	Arg	Asp	Met	Gln	Leu	Pro	Ser	Asn	Val	Ser	Cys	Trp	Ile	
225					230					235					240	
Thr	Gly	Trp	Gly	Met	Leu	Thr	Glu	Asp	Leu	Cys	Ser	Gln	Gly	Asp	Ser	
				245					250					255		
Gly	Gly	Pro	Leu	Val	Cys	Tyr	Leu	Pro	Ser	Ala	Trp	Val	Leu	Val	Gly	
			260					265					270			
Leu	Ala	Ser	Trp	Gly	Leu	Asp	Cys	Arg	His	Pro	Ala	Tyr	Pro	Ser	Ile	
		275					280					285				
Phe	Thr	Arg	Val	Thr	Tyr	Phe	Ile	Asn	Trp	Ile	Asp	Lys	Ile	Met	Arg	
	290					295					300					
Leu	Thr	Pro	Leu	Ser	Asp	Pro	Ala	Leu	Ala	Pro	His	Thr	Cys	Ser	Pro	
305					310					315					320	

Pro Lys Pro Leu Arg Ala Ala Gly Leu Pro Gly Pro Cys Ala Ala Leu  
 325 330 335

Val Leu Pro Gln Thr Trp Leu Leu Leu Pro Leu Thr Leu Arg Ala Pro  
 340 345 350

Trp Gln Thr Leu  
 355

<210> 33  
 <211> 2393  
 <212> DNA  
 <213> Homo sapiens

<400> 33  
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 cggccccccc caggggggatg ggcacagcca cgccagatgg acgagaagac caagaaagca 180  
 gaggaaatgg ccctgagcct caccgagca gtggcgggcg gggatgaaca ggtggcaatg 240  
 aagtgtgccg tctggctggc agagcaacgg gtgcccctga gtgtgcaact gaagcctgag 300  
 gtctcccaa cgcaggacat caggctgtgg gtgagcgtgg aggatgctca gatgcacacc 360  
 gtcaccatct ggctcacagt gcgccctgat atgaccgtgg cgtctctcaa ggacatgggt 420  
 tttctggact atggcttccc accagtcttg cagcagtggg tgattgggca gcggtggca 480  
 cgagaccagg agaccctgca ctcccatggg gtgcggcaga atggggacag tgcctacctc 540  
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 ctgcggatgc tggaagatct gggcttcaag gacctcacgc tgcagccgcg gggccctctg 660  
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 acgcggcctg gctgtgagat gtgctgccgg gcgcgccccg aggcctacca ggtccccgcc 840  
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 cagtaccagc agcgggaagca gcagcagcag gaggggaact acctgcagca cgtccagctg 960  
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<210> 34

<211> 510

<212> PRT

<213> Homo sapiens

<400> 34

Met Asp Glu Lys Thr Lys Lys Ala Glu Glu Met Ala Leu Ser Leu Thr  
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Arg Ala Val Ala Gly Gly Asp Glu Gln Val Ala Met Lys Cys Ala Ile  
20 25 30

Trp Leu Ala Glu Gln Arg Val Pro Leu Ser Val Gln Leu Lys Pro Glu  
35 40 45

Val Ser Pro Thr Gln Asp Ile Arg Leu Trp Val Ser Val Glu Asp Ala  
50 55 60

Gln Met His Thr Val Thr Ile Trp Leu Thr Val Arg Pro Asp Met Thr  
65 70 75 80

Val Ala Ser Leu Lys Asp Met Val Phe Leu Asp Tyr Gly Phe Pro Pro  
85 90 95

Val Leu Gln Gln Trp Val Ile Gly Gln Arg Leu Ala Arg Asp Gln Glu  
100 105 110

Thr Leu His Ser His Gly Val Arg Gln Asn Gly Asp Ser Ala Tyr Leu  
115 120 125

Tyr Leu Leu Ser Ala Arg Asn Thr Ser Leu Asn Pro Gln Glu Leu Gln  
130 135 140

Arg Glu Arg Gln Leu Arg Met Leu Glu Asp Leu Gly Phe Lys Asp Leu  
145 150 155 160

Thr Leu Gln Pro Arg Gly Pro Leu Glu Pro Gly Pro Pro Lys Pro Gly

				165				170				175					
Val	Pro	Gln	Glu	Pro	Gly	Arg	Gly	Gln	Pro	Asp	Ala	Val	Pro	Glu	Pro		
180								185				190					
Pro	Pro	Val	Gly	Trp	Gln	Cys	Pro	Gly	Cys	Thr	Phe	Ile	Asn	Lys	Pro		
195								200				205					
Thr	Arg	Pro	Gly	Cys	Glu	Met	Cys	Cys	Arg	Ala	Arg	Pro	Glu	Ala	Tyr		
210				215								220					
Gln	Val	Pro	Ala	Ser	Tyr	Gln	Pro	Asp	Glu	Glu	Glu	Arg	Ala	Arg	Leu		
225				230								235				240	
Ala	Gly	Glu	Glu	Glu	Ala	Leu	Arg	Gln	Tyr	Gln	Gln	Arg	Lys	Gln	Gln		
				245				250								255	
Gln	Gln	Glu	Gly	Asn	Tyr	Leu	Gln	His	Val	Gln	Leu	Asp	Gln	Arg	Ser		
				260				265								270	
Leu	Val	Leu	Asn	Thr	Glu	Pro	Ala	Glu	Cys	Pro	Val	Cys	Tyr	Ser	Val		
275								280				285					
Leu	Ala	Pro	Gly	Glu	Ala	Val	Val	Leu	Arg	Glu	Cys	Leu	His	Thr	Phe		
290				295								300					
Cys	Arg	Glu	Cys	Leu	Gln	Gly	Thr	Ile	Arg	Asn	Ser	Gln	Glu	Ala	Glu		
305				310								315				320	
Val	Ser	Cys	Pro	Phe	Ile	Asp	Asn	Thr	Tyr	Ser	Cys	Ser	Gly	Lys	Leu		
				325				330								335	
Leu	Glu	Arg	Glu	Ile	Lys	Ala	Leu	Leu	Thr	Pro	Glu	Asp	Tyr	Gln	Arg		
340								345				350					
Phe	Leu	Asp	Leu	Gly	Ile	Ser	Ile	Ala	Glu	Asn	Arg	Ser	Ala	Phe	Ser		
355								360				365					
Tyr	His	Cys	Lys	Thr	Pro	Asp	Cys	Lys	Gly	Trp	Cys	Phe	Phe	Glu	Asp		
370				375								380					
Asp	Val	Asn	Glu	Phe	Thr	Cys	Pro	Val	Cys	Phe	His	Val	Asn	Cys	Leu		
385				390								395				400	
Leu	Cys	Lys	Ala	Ile	His	Glu	Gln	Met	Asn	Cys	Lys	Glu	Tyr	Gln	Glu		
				405				410								415	
Asp	Leu	Ala	Leu	Arg	Ala	Gln	Asn	Asp	Val	Ala	Ala	Arg	Gln	Thr	Thr		



420	425	430
Glu Met Leu Lys Val Met Leu Gln Gln Gly Glu Ala Met Arg Cys Pro		
435	440	445
Gln Cys Gln Ile Val Val Gln Lys Lys Asp Gly Cys Asp Trp Ile Arg		
450	455	460
Cys Thr Val Cys His Thr Glu Ile Cys Trp Val Thr Lys Gly Pro Arg		
465	470	475
Trp Gly Pro Gly Gly Pro Gly Asp Thr Ser Gly Gly Cys Arg Cys Arg		
485	490	495
Val Asn Gly Ile Pro Cys His Pro Ser Cys Gln Asn Cys His		
500	505	510

<210> 35

<211> 2372

<212> DNA

<213> Homo sapiens

<400> 35

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<210> 36

<211> 555

<212> PRT

<213> Homo sapiens

<400> 36

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Met Gly Ser Gly Arg Val Gly Gly His Thr Ala Trp Leu Ser Cys Ser
  1                      5                      10                      15

```

```

Trp Ser Pro Ala Ser Pro Arg Arg Pro Gly Gly Ser Ile Ser Gln Glu
                20                      25                      30

```

```

Ala Arg Ser Pro Pro Gly Gly Trp Ala Gln Pro Arg Gln Met Asp Glu
                35                      40                      45

```

```

Lys Thr Lys Lys Ala Glu Glu Met Ala Leu Ser Leu Thr Arg Ala Val
                50                      55                      60

```

```

Ala Gly Gly Asp Glu Gln Val Ala Met Lys Cys Ala Ile Trp Leu Ala
                65                      70                      75                      80

```

```

Glu Gln Arg Val Pro Pro Ser Val Gln Leu Lys Pro Glu Val Ser Pro
                85                      90                      95

```

```

Thr Gln Asp Ile Arg Leu Trp Val Ser Val Glu Asp Ala Gln Met His
                100                      105                      110

```

```

Thr Val Thr Ile Trp Leu Thr Val Arg Pro Asp Met Thr Val Ala Ser
                115                      120                      125

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Leu Lys Asp Met Val Phe Leu Asp Tyr Gly Phe Pro Pro Val Leu Gln  
 130 135 140  
 Gln Trp Val Ile Gly Gln Arg Leu Ala Arg Asp Gln Glu Thr Leu His  
 145 150 155 160  
 Ser His Gly Val Arg Gln Asn Gly Asp Ser Ala Tyr Leu Tyr Leu Leu  
 165 170 175  
 Ser Ala Arg Asn Thr Ser Leu Asn Pro Gln Glu Leu Gln Arg Glu Arg  
 180 185 190  
 Gln Leu Arg Met Leu Glu Asp Leu Gly Phe Lys Asp Leu Thr Leu Gln  
 195 200 205  
 Pro Arg Gly Pro Leu Glu Pro Gly Pro Pro Lys Pro Gly Val Pro Gln  
 210 215 220  
 Glu Pro Gly Arg Gly Gln Pro Asp Ala Val Pro Glu Pro Pro Pro Val  
 225 230 235 240  
 Gly Trp Gln Cys Pro Gly Cys Thr Phe Ile Asn Lys Pro Thr Arg Pro  
 245 250 255  
 Gly Cys Glu Met Cys Cys Arg Ala Arg Pro Glu Ala Tyr Gln Val Pro  
 260 265 270  
 Ala Ser Tyr Gln Pro Asp Glu Glu Glu Arg Ala Arg Leu Ala Gly Glu  
 275 280 285  
 Glu Glu Ala Leu Arg Gln Tyr Gln Gln Arg Lys Gln Gln Gln Gln Glu  
 290 295 300  
 Gly Asn Tyr Leu Gln His Val Gln Leu Asp Gln Arg Ser Leu Val Leu  
 305 310 315 320  
 Asn Thr Glu Pro Ala Glu Cys Pro Val Cys Tyr Ser Val Leu Ala Pro  
 325 330 335  
 Gly Glu Ala Val Val Leu Arg Glu Cys Leu His Thr Phe Cys Arg Glu  
 340 345 350  
 Cys Leu Gln Gly Thr Ile Arg Asn Ser Gln Glu Ala Glu Val Ser Cys  
 355 360 365  
 Pro Phe Ile Asp Asn Thr Tyr Ser Cys Ser Gly Lys Leu Leu Glu Arg  
 370 375 380

Glu Ile Lys Ala Leu Leu Thr Pro Glu Asp Tyr Gln Arg Phe Leu Asp  
385 390 395 400

Leu Gly Ile Ser Ile Ala Glu Asn Arg Ser Ala Phe Ser Tyr His Cys  
405 410 415

Lys Thr Pro Asp Cys Lys Gly Trp Cys Phe Phe Glu Asp Asp Val Asn  
420 425 430

Glu Phe Thr Cys Pro Val Cys Phe His Val Asn Cys Leu Leu Cys Lys  
435 440 445

Ala Ile His Glu Gln Met Asn Cys Lys Glu Tyr Gln Glu Asp Leu Ala  
450 455 460

Leu Arg Ala Gln Asn Asp Val Ala Ala Arg Gln Thr Thr Glu Met Leu  
465 470 475 480

Lys Val Met Leu Gln Gln Gly Glu Ala Met Arg Cys Pro Gln Cys Gln  
485 490 495

Ile Val Val Gln Lys Lys Asp Gly Cys Asp Trp Ile Arg Cys Thr Val  
500 505 510

Cys His Thr Glu Ile Cys Trp Val Thr Lys Gly Pro Arg Trp Gly Pro  
515 520 525

Gly Gly Pro Gly Asp Thr Ser Gly Gly Cys Arg Cys Arg Val Asn Gly  
530 535 540

Ile Pro Cys His Pro Ser Cys Gln Asn Cys His  
545 550 555

<210> 37

<211> 1233

<212> DNA

<213> Homo sapiens

<400> 37

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agggttaagg aaaaccttcc agtctggaca gtgactggag agctccaagg aaagcccctc 180  
ggtaaccacg ccgctggcac catgaaccca gagagcagta tctttattga ggattacctt 240  
aagtatttcc aggaccaagt gagcagagag aatctgctac aactgctgac tgatgatgaa 300  
gcctggaatg gattcgtggc tgctgctgaa ctgcccaggg atgaggcaga tgagctccgt 360  
aaagctctga acaagcttgc aagtcacatg gtcataagg acaaaaaccg ccacgataaa 420  
gaccagcagc acaggcagtg gtttttgaaa gagtttctc ggttgaaaag ggagcttgag 480

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<210> 38

<211> 401

<212> PRT

<213> Homo sapiens

<400> 38

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Met His Thr Ala Gln Asn Ser Trp Ile Leu Leu Ser Leu Cys Gln Arg
  1             5             10             15

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Lys Ile Pro Trp Thr Arg Gly Pro Cys Leu Gly Val Arg Val Arg Glu
          20             25             30

```

```

Glu Glu Ala Gly Thr Arg Val Lys Glu Asn Leu Pro Val Trp Thr Val
          35             40             45

```

```

Thr Gly Glu Leu Gln Gly Lys Pro Leu Gly Asn Pro Ala Ala Gly Thr
          50             55             60

```

```

Met Asn Pro Glu Ser Ser Ile Phe Ile Glu Asp Tyr Leu Lys Tyr Phe
          65             70             75             80

```

```

Gln Asp Gln Val Ser Arg Glu Asn Leu Leu Gln Leu Leu Thr Asp Asp
          85             90             95

```

```

Glu Ala Trp Asn Gly Phe Val Ala Ala Ala Glu Leu Pro Arg Asp Glu
          100            105            110

```

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Ala Asp Glu Leu Arg Lys Ala Leu Asn Lys Leu Ala Ser His Met Val
          115            120            125

```

```

Met Lys Asp Lys Asn Arg His Asp Lys Asp Gln Gln His Arg Gln Trp
          130            135            140

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Phe	Leu	Lys	Glu	Phe	Pro	Arg	Leu	Lys	Arg	Glu	Leu	Glu	Asp	His	Ile	
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Thr	Thr	Ile	Ala	Asn	Val	Val	Ser	Asn	Ser	Val	Gly	Thr	Thr	Ser	Gly	
			180					185					190			
Ile	Leu	Thr	Leu	Leu	Gly	Leu	Gly	Leu	Ala	Pro	Phe	Thr	Glu	Gly	Ile	
		195					200					205				
Ser	Phe	Val	Leu	Leu	Asp	Thr	Gly	Met	Gly	Leu	Gly	Ala	Ala	Ala	Ala	
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Val	Ala	Gly	Ile	Thr	Cys	Ser	Val	Val	Glu	Leu	Val	Asn	Lys	Leu	Arg	
225					230					235					240	
Ala	Arg	Ala	Gln	Ala	Arg	Asn	Leu	Asp	Gln	Ser	Gly	Thr	Asn	Val	Ala	
			245						250					255		
Lys	Val	Met	Lys	Glu	Phe	Val	Gly	Gly	Asn	Thr	Pro	Asn	Val	Leu	Thr	
		260						265					270			
Leu	Val	Asp	Asn	Trp	Tyr	Gln	Val	Thr	Gln	Gly	Ile	Gly	Arg	Asn	Ile	
		275					280					285				
Arg	Ala	Ile	Arg	Arg	Ala	Arg	Ala	Asn	Pro	Gln	Leu	Gly	Ala	Tyr	Ala	
	290					295					300					
Pro	Pro	Pro	His	Val	Ile	Gly	Arg	Ile	Ser	Ala	Glu	Gly	Gly	Glu	Gln	
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Val	Glu	Arg	Val	Val	Glu	Gly	Pro	Ala	Gln	Ala	Met	Ser	Arg	Gly	Thr	
				325					330					335		
Met	Ile	Val	Gly	Ala	Ala	Thr	Gly	Gly	Ile	Leu	Leu	Leu	Leu	Asp	Val	
		340						345					350			
Val	Ser	Leu	Ala	Tyr	Glu	Ser	Lys	His	Leu	Leu	Glu	Gly	Ala	Lys	Ser	
		355					360					365				
Glu	Ser	Ala	Glu	Glu	Leu	Lys	Lys	Arg	Ala	Gln	Glu	Leu	Glu	Gly	Lys	
	370					375					380					
Leu	Asn	Phe	Leu	Thr	Lys	Ile	His	Glu	Met	Leu	Gln	Pro	Gly	Gln	Asp	
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Gln

<210> 39  
<211> 1232  
<212> DNA  
<213> Homo sapiens

<400> 39  
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gggttaagga aaaccttcca gtctggacag tgactggaga gctccaagga aagcccctcg 180  
gtaaccacgc cgctggcacc atgaaccag agagcagtat ctttattgag gattacctta 240  
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cctggaatgg attcgtggct gctgctgaac tgcccaggga tgaggcagat gagctccgta 360  
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accagcagca caggcagtggt tttttgaaag agtttcctcg gttgaaaagg gagcttgagg 480  
atcacataag gaagctccgt gcccttgcag aggagggttga gcagggtccac agaggcacca 540  
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aattgcgggc acgagcccaa gcccgcaact tggaccaaag cggcaccaat gtagcaaagg 780  
tgatgaagga gtttgtgggt gggaacacac ccaatgttct taccttagtt gacaattggt 840  
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tcgtgggtgc agccactgga ggcattcttc ttctgctgga tgtggtcagc cttgcatatg 1080  
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<210> 40  
<211> 401  
<212> PRT  
<213> Homo sapiens

<400> 40  
Met His Ile Ala Gln Asn Ser Trp Ile Leu Leu Ser Leu Cys Gln Arg  
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Lys Ile Pro Trp Thr Arg Gly Pro Cys Leu Gly Val Arg Val Arg Glu  
20 25 30  
Glu Glu Ala Gly Thr Arg Val Lys Glu Asn Leu Pro Val Trp Thr Val  
35 40 45





Pro Pro Pro His Val Ile Gly Arg Ile Ser Ala Glu Gly Gly Glu Gln  
 305 310 315 320

Val Glu Arg Val Val Glu Gly Pro Ala Gln Ala Met Ser Arg Gly Thr  
 325 330 335

Met Ile Val Gly Ala Ala Thr Gly Gly Ile Leu Leu Leu Leu Asp Val  
 340 345 350

Val Ser Leu Ala Tyr Glu Ser Lys His Leu Leu Glu Gly Ala Lys Ser  
 355 360 365

Glu Ser Ala Glu Glu Leu Lys Lys Arg Ala Gln Glu Leu Glu Gly Lys  
 370 375 380

Leu Asn Phe Leu Thr Lys Ile His Glu Met Leu Gln Pro Gly Gln Asp  
 385 390 395 400

Gln

<210> 41

<211> 1351

<212> DNA

<213> Homo sapiens

<400> 41

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 tgatgccacc catcagggcc atggccaggg tcaccaagag accataaatc tggaactttc 180  
 cctgtgttct tgcggtccag tcccgttgga aaccttgaaa gtcaaaggaa tggacaagcc 240  
 cttcttttcc atagacttca aggctggcgg aggcgctgt cacagcaccc acgatgccgc 300  
 ctatgatgcc aggaatgcca tgcagattgt taatgccaca tgtgtcctgg atgtgcagcc 360  
 gggactccag gaatggggtc aggtatacaa aaccagggt ggagatgatg ccgcagacga 420  
 agccgatgat gagggcaccc taaggcatga gcatcatctc agcagcggta cccacggcca 480  
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 gggcactgga tattgccacc gaggtaagca cgcaggctgc caaggagcag taggtgttga 600  
 tggcggctcg gtgctggctg tccccatggt aggatatggc tgagttgaag ctgggccagt 660  
 acatccacag gaagagggtg ccaatcatgg caaagagggt cgactggtac acagaattct 720  
 gtctctcctt gctctgctct aggttgctgc ggtagaggat ccgggtcact gtgagcccaa 780  
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 gctgaatggg gctgacttta cccagaactg ccccaaaggc cagcagaca gagggcacgc 960  
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 ggaaccagcc ctgcatgagc agcgcacct ggatgccgaa ggctgccaac aggaagttga 1080  
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cgctcaagtt cttgtgcgtc ctctctgacc accagtgggc gtcggcctcg aagtcgtagc 1260  
gcacgaacac cccgaagaga atcaccataa tcacctgcag gagcaggcag gtgagcggca 1320  
gccgccagcg gaggttggtg ttccaggcca t 1351

<210> 42  
<211> 445  
<212> PRT  
<213> Homo sapiens

<400> 42

Met Ala Trp Asn Thr Asn Leu Arg Trp Arg Leu Pro Leu Thr Cys Leu  
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Leu Leu Gln Val Ile Met Val Ile Leu Phe Gly Val Phe Val Arg Tyr  
20 25 30

Asp Phe Glu Ala Asp Ala His Trp Trp Ser Glu Arg Thr His Lys Asn  
35 40 45

Leu Ser Asp Met Glu Asn Glu Phe Tyr Tyr Arg Tyr Pro Ser Phe Gln  
50 55 60

Asp Val His Val Met Val Phe Val Gly Phe Gly Phe Leu Met Thr Phe  
65 70 75 80

Leu Gln Arg Tyr Gly Phe Ser Ala Val Gly Phe Asn Phe Leu Leu Ala  
85 90 95

Ala Phe Gly Ile Gln Trp Ala Leu Leu Met Gln Gly Trp Phe His Phe  
100 105 110

Leu Gln Asp Arg Tyr Ile Val Val Gly Val Glu Asn Leu Ile Asn Ala  
115 120 125

Asp Phe Cys Val Ala Ser Val Cys Val Ala Phe Gly Ala Val Leu Gly  
130 135 140

Lys Val Ser Pro Ile Gln Leu Leu Ile Met Thr Phe Phe Gln Val Thr  
145 150 155 160

Leu Phe Ala Val Asn Glu Phe Ile Leu Leu Asn Leu Leu Lys Val Lys  
165 170 175

Asp Ala Gly Gly Ser Met Thr Ile His Thr Phe Gly Ala Tyr Phe Gly  
180 185 190

Leu Thr Val Thr Arg Ile Leu Tyr Arg Arg Asn Leu Glu Gln Ser Lys

195					200					205					
Glu	Arg	Gln	Asn	Ser	Val	Tyr	Gln	Ser	Asp	Leu	Phe	Ala	Met	Ile	Gly
210						215					220				
Thr	Leu	Phe	Leu	Trp	Met	Tyr	Trp	Pro	Ser	Phe	Asn	Ser	Ala	Ile	Ser
225					230					235				240	
Tyr	His	Gly	Asp	Ser	Gln	His	Arg	Ala	Ala	Ile	Asn	Thr	Tyr	Cys	Ser
				245					250					255	
Leu	Ala	Ala	Cys	Val	Leu	Thr	Ser	Val	Ala	Ile	Ser	Ser	Ala	Leu	His
			260					265					270		
Lys	Lys	Gly	Lys	Leu	Asp	Met	Val	His	Ile	Gln	Asn	Ala	Thr	Leu	Ala
		275					280					285			
Gly	Gly	Val	Ala	Val	Gly	Thr	Ala	Ala	Glu	Met	Met	Leu	Met	Pro	Tyr
		290				295					300				
Gly	Ala	Leu	Ile	Ile	Gly	Phe	Val	Cys	Gly	Ile	Ile	Ser	Thr	Leu	Gly
305					310					315				320	
Phe	Val	Tyr	Leu	Thr	Pro	Phe	Leu	Glu	Ser	Arg	Leu	His	Ile	Gln	Asp
				325					330					335	
Thr	Cys	Gly	Ile	Asn	Asn	Leu	His	Gly	Ile	Pro	Gly	Ile	Ile	Gly	Gly
			340					345					350		
Ile	Val	Gly	Ala	Val	Thr	Ala	Ala	Ser	Ala	Ser	Leu	Glu	Val	Tyr	Gly
		355					360					365			
Lys	Glu	Gly	Leu	Val	His	Ser	Phe	Asp	Phe	Gln	Gly	Phe	Asn	Gly	Asp
	370					375					380				
Trp	Thr	Ala	Arg	Thr	Gln	Gly	Lys	Phe	Gln	Ile	Tyr	Gly	Leu	Leu	Val
385					390					395				400	
Thr	Leu	Ala	Met	Ala	Leu	Met	Gly	Gly	Ile	Ile	Val	Gly	Leu	Ile	Leu
				405					410					415	
Arg	Leu	Pro	Phe	Trp	Gly	Gln	Pro	Ser	Asp	Glu	Asn	Cys	Phe	Glu	Asp
			420					425					430		
Ala	Val	Tyr	Trp	Glu	Val	Ser	Ser	Arg	Asp	Leu	Ala	Pro			
		435					440					445			

<210> 43  
 <211> 1763  
 <212> DNA  
 <213> Homo sapiens

<400> 43  
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<210> 44  
 <211> 549  
 <212> PRT  
 <213> Homo sapiens

<400> 44  
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 Met Gly Pro Gln Tyr Cys Val Cys Lys Val Glu Leu Ser Val Ser Gly



275		280		285
Lys Ile Asn Arg Asp Tyr Ser Phe Leu Asp Tyr Ile Leu Gly Gly Cys				
290		295		300
Gln Leu Met Phe Thr Val Gly Ile Asp Phe Thr Ala Ser Asn Gly Asn				
305		310		315
				320
Pro Leu Asp Pro Ser Ser Leu His Tyr Ile Asn Pro Met Gly Thr Asn				
		325		330
				335
Glu Tyr Leu Ser Ala Ile Trp Ala Val Gly Gln Ile Ile Gln Asp Tyr				
		340		345
				350
Asp Ser Asp Lys Met Phe Pro Ala Leu Gly Phe Gly Ala Gln Leu Pro				
		355		360
				365
Pro Asp Trp Lys Val Ser His Glu Phe Ala Ile Asn Phe Asn Pro Thr				
		370		375
				380
Asn Pro Phe Cys Ser Gly Val Asp Gly Ile Ala Gln Ala Tyr Ser Ala				
385		390		395
				400
Cys Leu Pro His Ile Arg Phe Tyr Gly Pro Thr Asn Phe Ser Pro Ile				
		405		410
				415
Val Asn His Val Ala Arg Phe Ala Ala Gln Ala Thr Gln Gln Arg Thr				
		420		425
				430
Ala Thr Gln Tyr Phe Ile Leu Leu Ile Ile Thr Asp Gly Val Ile Ser				
		435		440
				445
Asp Met Glu Glu Thr Arg His Ala Val Val Gln Ala Ser Lys Leu Pro				
		450		455
				460
Met Ser Ile Ile Ile Val Gly Val Gly Asn Ala Asp Phe Ala Ala Met				
465		470		475
				480
Glu Phe Leu Asp Gly Asp Ser Arg Met Leu Arg Ser His Thr Gly Glu				
		485		490
				495
Glu Ala Ala Arg Asp Ile Val Gln Phe Val Pro Phe Arg Glu Phe Arg				
		500		505
				510
Asn Ala Ala Lys Glu Thr Leu Ala Lys Ala Val Leu Ala Glu Leu Pro				
		515		520
				525
Gln Gln Val Val Gln Tyr Phe Lys His Lys Asn Leu Pro Pro Thr Ser				

530

535

540

Tyr Glu Asn Pro Thr

545

&lt;210&gt; 45

&lt;211&gt; 1070

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 45

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gatggctaca tctacacctg gaccaagagc cgattttgga gaaagacttc gctccacca 720
tactggatct acccttactc atatgcttac aaactcggtg agaacaatgc tgagttgaat 780
gccctggcta aagctactgt gaaagaactt gcctcactgc acggcaccaa gtacacatat 840
ggcccgggag ctacaacaat ctatcctgct gctgggggct ctgacgactg ggcttatgac 900
caaggaatca gatattcctt cacctttgaa cttcgagata caggcagata tggctttctc 960
cttcagaat cccagatccg ggctacctgc gaggagacct tcctggcaat caagtatgtt 1020
gccagctacg tcctggaaca cctgtactag ttgagaaagc tgatggcctt 1070

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&lt;210&gt; 46

&lt;211&gt; 349

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 46

```

Met Leu Ala Leu Leu Val Leu Val Thr Val Ala Leu Ala Ser Ala His
  1             5             10             15

```

```

His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val
      20             25             30

```

```

Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala Thr Phe Ile
  35             40             45

```

```

Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile Lys Pro His

```

50		55		60															
Ser	Thr	Val	Asp	Phe	Arg	Val	Lys	Ala	Glu	Asp	Thr	Val	Thr	Val	Glu				
65					70					75					80				
Asn	Val	Leu	Lys	Gln	Asn	Glu	Leu	Gln	Tyr	Lys	Val	Leu	Ile	Ser	Asn				
				85					90					95					
Leu	Arg	Asn	Val	Val	Glu	Ala	Gln	Phe	Asp	Ser	Arg	Val	Arg	Ala	Thr				
			100					105					110						
Gly	His	Ser	Tyr	Glu	Lys	Tyr	Asn	Lys	Trp	Glu	Thr	Ile	Glu	Ala	Trp				
		115					120					125							
Thr	Gln	Gln	Val	Ala	Thr	Glu	Asn	Pro	Ala	Leu	Ile	Ser	Arg	Ser	Val				
	130					135					140								
Ile	Gly	Thr	Thr	Phe	Glu	Gly	Arg	Ala	Ile	Tyr	Leu	Leu	Lys	Val	Gly				
145					150					155					160				
Lys	Ala	Gly	Gln	Asn	Lys	Pro	Ala	Ile	Phe	Met	Glu	Cys	Gly	Phe	His				
			165					170						175					
Ala	Arg	Glu	Trp	Ile	Ser	Pro	Ala	Phe	Cys	Gln	Trp	Phe	Val	Arg	Glu				
		180						185					190						
Ala	Val	Arg	Thr	Tyr	Gly	Arg	Glu	Ile	Gln	Val	Thr	Glu	Leu	Leu	Asp				
	195						200					205							
Lys	Leu	Asp	Phe	Tyr	Val	Leu	Pro	Val	Leu	Asn	Ile	Asp	Gly	Tyr	Ile				
	210					215				220									
Tyr	Thr	Trp	Thr	Lys	Ser	Arg	Phe	Trp	Arg	Lys	Thr	Ser	Leu	His	Pro				
225				230						235					240				
Tyr	Trp	Ile	Tyr	Pro	Tyr	Ser	Tyr	Ala	Tyr	Lys	Leu	Gly	Glu	Asn	Asn				
			245					250						255					
Ala	Glu	Leu	Asn	Ala	Leu	Ala	Lys	Ala	Thr	Val	Lys	Glu	Leu	Ala	Ser				
		260						265					270						
Leu	His	Gly	Thr	Lys	Tyr	Thr	Tyr	Gly	Pro	Gly	Ala	Thr	Thr	Ile	Tyr				
	275						280					285							
Pro	Ala	Ala	Gly	Gly	Ser	Asp	Asp	Trp	Ala	Tyr	Asp	Gln	Gly	Ile	Arg				
	290					295					300								
Tyr	Ser	Phe	Thr	Phe	Glu	Leu	Arg	Asp	Thr	Gly	Arg	Tyr	Gly	Phe	Leu				



305 310 315 320

Leu Pro Glu Ser Gln Ile Arg Ala Thr Cys Glu Glu Thr Phe Leu Ala  
325 330 335

Ile Lys Tyr Val Ala Ser Tyr Val Leu Glu His Leu Tyr  
340 345

<210> 47

<211> 693

<212> DNA

<213> Homo sapiens

<400> 47

ggatcccatac atggtggtga gcactttgaa ggcgagaagg tgttccgtgt taacgttgaa 60  
gatgaaaatac acattaacat aatccgcgag ttggccagca cgaccagat tgacttctgg 120  
aagccagatt ctgtcacaca aatcaaacct cacagtacag ttgacttccg tgttaaagca 180  
gaagatactg tcaactgtga gaatgttcta aagcagaatg aactacaata caaggtactg 240  
ataagcaacc tgagaaatgt ggtggaggct cagtttgata gccgggttcg tgcaacagga 300  
cacagttatg agaagtacaa caagtgggaa acgatagagg cttggactca acaagtcgcc 360  
actgagaatc cagccctcat ctctcgcagt gttatcggaa ccacatttga gggacgcgct 420  
atttacctcc tgaaggttgg caaagctgga caaaataagc ctgccatttt catggaatgt 480  
ggtttccatg ccagagagtg gattttctct gcattctgcc agtggtttgt aagagaggct 540  
gttcgtacct atggacgtga gatccaagt acagagcttc tcgacaagtt agacttttat 600  
gtcctgcctg tgctcaatat tgatggctac atctacacct ggaccaagag ccgatttttg 660  
agaaagactt cgctccaccc atactggctc gag 693

<210> 48

<211> 231

<212> PRT

<213> Homo sapiens

<400> 48

Gly Ser His His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg  
1 5 10 15

Val Asn Val Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala  
20 25 30

Ser Thr Thr Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile  
35 40 45

Lys Pro His Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val  
50 55 60

Thr Val Glu Asn Val Leu Lys Gln Asn Glu Leu Gln Tyr Lys Val Leu

65		70		75		80
Ile Ser Asn Leu Arg Asn Val Val Glu Ala Gln Phe Asp Ser Arg Val						
	85		90		95	
Arg Ala Thr Gly His Ser Tyr Glu Lys Tyr Asn Lys Trp Glu Thr Ile						
	100		105		110	
Glu Ala Trp Thr Gln Gln Val Ala Thr Glu Asn Pro Ala Leu Ile Ser						
	115		120		125	
Arg Ser Val Ile Gly Thr Thr Phe Glu Gly Arg Ala Ile Tyr Leu Leu						
	130		135		140	
Lys Val Gly Lys Ala Gly Gln Asn Lys Pro Ala Ile Phe Met Glu Cys						
	145		150		155	160
Gly Phe His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Gln Trp Phe						
	165		170		175	
Val Arg Glu Ala Val Arg Thr Tyr Gly Arg Glu Ile Gln Val Thr Glu						
	180		185		190	
Leu Leu Asp Lys Leu Asp Phe Tyr Val Leu Pro Val Leu Asn Ile Asp						
	195		200		205	
Gly Tyr Ile Tyr Thr Trp Thr Lys Ser Arg Phe Trp Arg Lys Thr Ser						
	210		215		220	
Leu His Pro Tyr Trp Leu Glu						
	225		230			

<210> 49

<211> 693

<212> DNA

<213> Homo sapiens

<400> 49

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ggatcccatc atggtggtga gcactttgaa ggcgagaagg tgttccgtgt taacgttgaa 60
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aagccagatt ctgtcacaca aatcaaacct cacagtacag ttgacttccg tgttaaagca 180
gaagatactg tcaactgtgga gaatgttcta aagcagaatg aactacaata caaggtactg 240
ataagcaacc tgagaaatgt ggtggaggct cagtttgata gccggggttcg tgcaacagga 300
cacagttatg agaagtacaa caagtgggaa acgatagagg cttggactca acaagtcgcc 360
actgagaatc cagccctcat ctctcgcagt gttatcggaa ccacatttga gggacgcgct 420
atttacctcc tgaaggttgg caaagctgga caaaataagc ctgccatttt catggactgt 480
ggtttccatg ccagagagtg gatttctcct gcattctgcc agtggtttgt aagagaggct 540

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gttcgtacca atggacgtga gatccaagtg acagagcttc tcgacaagtt agacttttat 600  
 gtcttgctg tgctcaatat tgatggctac atctacacct ggaccaagag ccgattttgg 660  
 agaaagactt cgctccaccc atactggctc gag 693

<210> 50  
 <211> 231  
 <212> PRT  
 <213> Homo sapiens

<400> 50

Gly Ser His His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg  
 1 5 10 15

Val Asn Val Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala  
 20 25 30

Ser Thr Thr Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile  
 35 40 45

Lys Pro His Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val  
 50 55 60

Thr Val Glu Asn Val Leu Lys Gln Asn Glu Leu Gln Tyr Lys Val Leu  
 65 70 75 80

Ile Ser Asn Leu Arg Asn Val Val Glu Ala Gln Phe Asp Ser Arg Val  
 85 90 95

Arg Ala Thr Gly His Ser Tyr Glu Lys Tyr Asn Lys Trp Glu Thr Ile  
 100 105 110

Glu Ala Trp Thr Gln Gln Val Ala Thr Glu Asn Pro Ala Leu Ile Ser  
 115 120 125

Arg Ser Val Ile Gly Thr Thr Phe Glu Gly Arg Ala Ile Tyr Leu Leu  
 130 135 140

Lys Val Gly Lys Ala Gly Gln Asn Lys Pro Ala Ile Phe Met Asp Cys  
 145 150 155 160

Gly Phe His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Gln Trp Phe  
 165 170 175

Val Arg Glu Ala Val Arg Thr Asn Gly Arg Glu Ile Gln Val Thr Glu  
 180 185 190

Leu Leu Asp Lys Leu Asp Phe Tyr Val Leu Pro Val Leu Asn Ile Asp

195 200 205

Gly Tyr Ile Tyr Thr Trp Thr Lys Ser Arg Phe Trp Arg Lys Thr Ser  
 210 215 220

Leu His Pro Tyr Trp Leu Glu  
 225 230

<210> 51  
 <211> 693  
 <212> DNA  
 <213> Homo sapiens

<400> 51

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gatgaaaatc acattaacat aatccgcgag ttggccagca cgaccagat tgacttctgg 120
aagccagatt ctgtcacaca aatcaaacct cacagtacag ttgacttccg tgttaaagca 180
gaagatactg tactgtgga gaatgttcta aagcagaatg aactacaata caagggtactg 240
ataagcaacc tgagaaatgt ggtggaggct cagtttgata gccgggttcg tgcaacagga 300
cacagttatg agaagtacaa caagtgggaa acgatagagg cttggactca acaagtcgcc 360
actgagaatc cagccctcat ctctcgagc gttatcgga ccacatttga gggacgcgct 420
atttacctcc tgaagggttg caaagctgga caaaataagc ctgccatttt catggactgt 480
ggtttccatg ccagagagtg gatttctcct gcattctgcc agtggtttgt aagagaggct 540
gttcgtacct atggacgtga gatccaagt acagagcttc tcgacaagtt agacttttat 600
gtcctgcctg tgctcaatat tgatggctac atctacacct ggaccaagag ccgatttttg 660
agaaagactt cgctccaccc atactggctc gag 693
  
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<210> 52  
 <211> 231  
 <212> PRT  
 <213> Homo sapiens

<400> 52

Gly Ser His His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg  
 1 5 10 15

Val Asn Val Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala  
 20 25 30

Ser Thr Thr Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile  
 35 40 45

Lys Pro His Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val  
 50 55 60

Thr Val Glu Asn Val Leu Lys Gln Asn Glu Leu Gln Tyr Lys Val Leu

65		70		75		80
Ile Ser Asn Leu Arg Asn Val Val Glu Ala Gln Phe Asp Ser Arg Val						
	85		90		95	
Arg Ala Thr Gly His Ser Tyr Glu Lys Tyr Asn Lys Trp Glu Thr Ile						
	100		105		110	
Glu Ala Trp Thr Gln Gln Val Ala Thr Glu Asn Pro Ala Leu Ile Ser						
	115		120		125	
Arg Ser Val Ile Gly Thr Thr Phe Glu Gly Arg Ala Ile Tyr Leu Leu						
	130		135		140	
Lys Val Gly Lys Ala Gly Gln Asn Lys Pro Ala Ile Phe Met Asp Cys						
	145		150		155	160
Gly Phe His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Gln Trp Phe						
	165		170		175	
Val Arg Glu Ala Val Arg Thr Tyr Gly Arg Glu Ile Gln Val Thr Glu						
	180		185		190	
Leu Leu Asp Lys Leu Asp Phe Tyr Val Leu Pro Val Leu Asn Ile Asp						
	195		200		205	
Gly Tyr Ile Tyr Thr Trp Thr Lys Ser Arg Phe Trp Arg Lys Thr Ser						
	210		215		220	
Leu His Pro Tyr Trp Leu Glu						
	225		230			

<210> 53

<211> 693

<212> DNA

<213> Homo sapiens

<400> 53

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gatgaaaatc acattaacat aatccgcgag ttggccagca cgaccagat tgacttctgg 120
aagccagatt ctgtcacaca aatcaaacct cacagtacag ttgacttccg tgttaaagca 180
gaagatactg tctactgtgga gaatgttcta aagcagaatg aactacaata caaggtactg 240
ataagcaacc tgagaaatgt ggtggaggct cagtttgata gccgggttcg tgcaacagga 300
cacagttatg agaagtacaa caagtgggaa acgatagagg cttggactca acaagtcgcc 360
actgagaatc cagccctcat ctctcgcagt gttatcggaa ccacatttga gggacgcggt 420
atttacctcc tgaagggttg caaagctgga caaataaagc ctgccatttt catggactgt 480
ggtttccatg ccagagagtg gatttctcct gcattccgcc agtggtttgt aagagaggct 540

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gttcgtacct atggacgtga gatccaagt acagagcttc tcgacaagtt agacttttat 600  
 gtccctgcctg tgctcaatat tgatggctac atctacacct ggaccaagag ccgattttgg 660  
 agaaagactt cgctccaccc atactggctc gag 693

<210> 54  
 <211> 231  
 <212> PRT  
 <213> Homo sapiens

<400> 54

Gly	Ser	His	His	Gly	Gly	Glu	His	Phe	Glu	Gly	Glu	Lys	Val	Phe	Arg
1				5					10					15	
Val	Asn	Val	Glu	Asp	Glu	Asn	His	Ile	Asn	Ile	Ile	Arg	Glu	Leu	Ala
			20					25					30		
Ser	Thr	Thr	Gln	Ile	Asp	Phe	Trp	Lys	Pro	Asp	Ser	Val	Thr	Gln	Ile
			35				40					45			
Lys	Pro	His	Ser	Thr	Val	Asp	Phe	Arg	Val	Lys	Ala	Glu	Asp	Thr	Val
	50					55					60				
Thr	Val	Glu	Asn	Val	Leu	Lys	Gln	Asn	Glu	Leu	Gln	Tyr	Lys	Val	Leu
65					70					75					80
Ile	Ser	Asn	Leu	Arg	Asn	Val	Val	Glu	Ala	Gln	Phe	Asp	Ser	Arg	Val
				85					90					95	
Arg	Ala	Thr	Gly	His	Ser	Tyr	Glu	Lys	Tyr	Asn	Lys	Trp	Glu	Thr	Ile
			100					105					110		
Glu	Ala	Trp	Thr	Gln	Gln	Val	Ala	Thr	Glu	Asn	Pro	Ala	Leu	Ile	Ser
		115					120					125			
Arg	Ser	Val	Ile	Gly	Thr	Thr	Phe	Glu	Gly	Arg	Val	Ile	Tyr	Leu	Leu
		130				135					140				
Lys	Val	Gly	Lys	Ala	Gly	Gln	Asn	Lys	Pro	Ala	Ile	Phe	Met	Asp	Cys
145					150					155					160
Gly	Phe	His	Ala	Arg	Glu	Trp	Ile	Ser	Pro	Ala	Phe	Arg	Gln	Trp	Phe
			165						170					175	
Val	Arg	Glu	Ala	Val	Arg	Thr	Tyr	Gly	Arg	Glu	Ile	Gln	Val	Thr	Glu
			180					185					190		
Leu	Leu	Asp	Lys	Leu	Asp	Phe	Tyr	Val	Leu	Pro	Val	Leu	Asn	Ile	Asp

195

200

205

Gly Tyr Ile Tyr Thr Trp Thr Lys Ser Arg Phe Trp Arg Lys Thr Ser  
 210 215 220

Leu His Pro Tyr Trp Leu Glu  
 225 230

&lt;210&gt; 55

&lt;211&gt; 649

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 55

actcactata gggctcgagc ggccgcccgg gcaggtgcag acatggccaa gtccaagaac 60  
 cacaccacac acaaccagtc ccgaaaatgg cacagaaatg gtatcaagaa accccgatca 120  
 caaagatacg aatctcttaa gggggtggac cccaagttcc tgaggaacat gcgctttgcc 180  
 aagaagcaca acaaaaaggg cctaaagaag atgcaggcca acaatgccaa ggccatgagt 240  
 gcacgtgccg aggctatcaa ggccctcgta aagcccaagg aggttaagcc caagatccca 300  
 aagggtgtca gccgcaagct cgatcgactt gcctacattg cccaccccaa gcttgggaag 360  
 cgtgctcgtg cccgtattgc caaggggctc aggtgtgccc ggccaaaggc caaggccaag 420  
 gccaaaggcca aggccaagga tcaaaccaag gcccaggctg cagccccagc ttcagttcca 480  
 gctcaggctc ccaaacgtac ccaggccctt acaaaggctt cagagtagat atctctgcc 540  
 acatgaggac agaaggactg gtgcgacccc ccacccccgc ccctgggcta ccatctgcat 600  
 ggggctgggg tcctcctgtg ctactggtac aaataaacct gaggcagga 649

&lt;210&gt; 56

&lt;211&gt; 161

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 56

Met Ala Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp  
 1 5 10 15

His Arg Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu  
 20 25 30

Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met Arg Phe Ala Lys Lys  
 35 40 45

His Asn Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Asn Ala Lys Ala  
 50 55 60

Met Ser Ala Arg Ala Glu Ala Ile Lys Ala Leu Val Lys Pro Lys Glu  
 65 70 75 80

Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asp Arg Leu  
85 90 95

Ala Tyr Ile Ala His Pro Lys Leu Gly Lys Arg Ala Arg Ala Arg Ile  
100 105 110

Ala Lys Gly Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Ala Lys  
115 120 125

Ala Lys Ala Lys Asp Gln Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser  
130 135 140

Val Pro Ala Gln Ala Pro Lys Arg Thr Gln Ala Pro Thr Lys Ala Ser  
145 150 155 160

Glu

<210> 57

<211> 580

<212> DNA

<213> Homo sapiens

<400> 57

actcactata gggctcgagc ggcgcttcgg gagccgcggc ttatggtgca gacatggcca 60  
agtccaagaa ccacaccaca cacaaccagt cccgaaaatg gcacagaaat ggtatcaaga 120  
aaccgccgac acaaagatac gaatctctta agggggtgga cccaagtgc ctgaggaaca 180  
tgcgctttgc caagaagcac aacaaaaagg gcctaaagaa gatgcaggcc aacaatgcca 240  
aggccatgag tgcacgtgcc gaggctatca aggcctcgt aaagcccaag gaggttaagc 300  
ccaagatccc aaaggtgtc agccgcaagc tcgatcgact tgctacatt gccacccca 360  
agcttgggaa gcgtgctcgt gcccgattg ccaaggggct caggctgtgc cggccaaagg 420  
ccaaggccaa ggccaaagcc aaggccaagg atcaaacc aaagccaggct gcagccccag 480  
cttcagttcc agctcaggct cccaaacgta cccaggcccc tacaaaggct tcagagtaga 540  
tatctctgcc aacatgagga cagaaagact ggtgcgaccc 580

<210> 58

<211> 161

<212> PRT

<213> Homo sapiens

<400> 58

Met Ala Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp  
1 5 10 15

His Arg Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu



20	25	30
Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met Arg Phe Ala Lys Lys		
35	40	45
His Asn Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Asn Ala Lys Ala		
50	55	60
Met Ser Ala Arg Ala Glu Ala Ile Lys Ala Leu Val Lys Pro Lys Glu		
65	70	75 80
Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asp Arg Leu		
85	90	95
Ala Tyr Ile Ala His Pro Lys Leu Gly Lys Arg Ala Arg Ala Arg Ile		
100	105	110
Ala Lys Gly Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Ala Lys		
115	120	125
Ala Lys Ala Lys Asp Gln Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser		
130	135	140
Val Pro Ala Gln Ala Pro Lys Arg Thr Gln Ala Pro Thr Lys Ala Ser		
145	150	155 160
Glu		

<210> 59

<211> 1143

<212> DNA

<213> Homo sapiens

<400> 59

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atgaggtcag tgcagatctt cctctcccaa tgccgtttgc tccttctact agttccgaca 60
atgctcctta agtctcttgg cgaagatgta atttttcacc ctgaagggga gtttgactcg 120
tatgaagtca ccattcctga gaagctgagc ttccggggag aggtgcaggg tgtggtcagt 180
cccggtgtct acctactgca gttaaaaggc aagaagcacg tcctccattt gtggcccaag 240
agacttctgt tgccccgaca tctgcgcgtt ttctccttca cagaacatgg ggaactgctg 300
gaggatcatc cttacatacc aaaggactgc aactacatgg gtcctgtgaa agagtctctg 360
gactctaaag ctactataag cacatgcatg ggggggtctc gaggtgtatt taacattgat 420
gccaaacatt accaaattga gccctcctca gcctctccca gttttgaaca tgcgtctat 480
ctcctgaaga aagagcagtt tgggaatcag gcagaaaatc tcatgtgctg gggcacaggc 540
tatcatctat ccatgaaacc catgggaata cctgacctag gtatgataaa tgatggcacc 600
tcctgtggag aaggccgggt atgtttttaa aaaaattgcg tcaatagctc agtcctgcag 660
tttgactgtt tgctgagaa atgcaatacc cggggtgttt gcaacaacag aaaaagctgc 720

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cactgcatgt atgggtgggc acctccattc tgtgaggaag tggggtatgg aggaagcatt 780
gacagtgggc ctccaggact gctcagaggg gcgattccct cgtcaatttg ggttgtgtcc 840
atcataatgt ttgccttat tttattaatc ctttcagtgg tttttgtgtt tttccggcaa 900
gtgataggaa accacttaaa acccaaacag gaaaaaatgc cactatccaa agcaaaaact 960
gaacaggaag aatctaaaac aaaaactgta caggaagaat ctaaaacaaa aactggacag 1020
gaagaatctg aagcaaaaac tggacaggaa gaatctaaag caaaaactgg acaggaagaa 1080
tctaaagcaa acattgaaag taaacgaccc aaagcaaaga gtgtcaagaa acaaaaaaag 1140
taa 1143

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<210> 60  
 <211> 380  
 <212> PRT  
 <213> Homo sapiens

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<400> 60
Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu
  1             5             10             15

Leu Val Pro Thr Met Leu Leu Lys Ser Leu Gly Glu Asp Val Ile Phe
             20             25             30

His Pro Glu Gly Glu Phe Asp Ser Tyr Glu Val Thr Ile Pro Glu Lys
             35             40             45

Leu Ser Phe Arg Gly Glu Val Gln Gly Val Val Ser Pro Val Ser Tyr
             50             55             60

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys
             65             70             75             80

Arg Leu Leu Leu Pro Arg His Leu Arg Val Phe Ser Phe Thr Glu His
             85             90             95

Gly Glu Leu Leu Glu Asp His Pro Tyr Ile Pro Lys Asp Cys Asn Tyr
             100            105            110

Met Gly Ser Val Lys Glu Ser Leu Asp Ser Lys Ala Thr Ile Ser Thr
             115            120            125

Cys Met Gly Gly Leu Arg Gly Val Phe Asn Ile Asp Ala Lys His Tyr
             130            135            140

Gln Ile Glu Pro Leu Lys Ala Ser Pro Ser Phe Glu His Val Val Tyr
             145            150            155            160

Leu Leu Lys Lys Glu Gln Phe Gly Asn Gln Ala Glu Asn Leu Met Cys
             165            170            175

```

Trp Gly Thr Gly Tyr His Leu Ser Met Lys Pro Met Gly Ile Pro Asp  
180 185 190

Leu Gly Met Ile Asn Asp Gly Thr Ser Cys Gly Glu Gly Arg Val Cys  
195 200 205

Phe Lys Lys Asn Cys Val Asn Ser Ser Val Leu Gln Phe Asp Cys Leu  
210 215 220

Pro Glu Lys Cys Asn Thr Arg Gly Val Cys Asn Asn Arg Lys Ser Cys  
225 230 235 240

His Cys Met Tyr Gly Trp Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr  
245 250 255

Gly Gly Ser Ile Asp Ser Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile  
260 265 270

Pro Ser Ser Ile Trp Val Val Ser Ile Ile Met Phe Arg Leu Ile Leu  
275 280 285

Leu Ile Leu Ser Val Val Phe Val Phe Phe Arg Gln Val Ile Gly Asn  
290 295 300

His Leu Lys Pro Lys Gln Glu Lys Met Pro Leu Ser Lys Ala Lys Thr  
305 310 315 320

Glu Gln Glu Glu Ser Lys Thr Lys Thr Val Gln Glu Glu Ser Lys Thr  
325 330 335

Lys Thr Gly Gln Glu Glu Ser Glu Ala Lys Thr Gly Gln Glu Glu Ser  
340 345 350

Lys Ala Lys Thr Gly Gln Glu Glu Ser Lys Ala Asn Ile Glu Ser Lys  
355 360 365

Arg Pro Lys Ala Lys Ser Val Lys Lys Gln Lys Lys  
370 375 380

<210> 61

<211> 1207

<212> DNA

<213> Homo sapiens

<400> 61

ccgcgggact ccggcggtccc cgccccccag tcctccctcc cctcccctcc agcatggtgc 60

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tcggggggga gcgctccagc cggccagccc cgtccgtggc gcccgagccg gacggctgcc 240
ccgtgtgcgt atggcggcag cacagccgcg agctgcgcct agagagcatc aagtgcgaga 300
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gcgagtacat gttcatgcaa aaatatccgc ataccattt ggtgcagcag gccaatccaa 960
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gctgctctta agtgggtcac tacaagctgc tggagcaaag acttggtggg tgggtaactt 1140
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aaagggt                                           1207

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<210> 62

<211> 345

<212> PRT

<213> Homo sapiens

<400> 62

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Met Val Leu Ala Ala Pro Leu Leu Leu Gly Phe Leu Leu Leu Ala Leu
  1              5              10              15

```

```

Glu Leu Arg Pro Arg Gly Glu Ala Ala Glu Gly Pro Ala Ala Ala Ala
      20              25              30

```

```

Ala Ala Ala Ala Ala Ala Ala Ala Ala Gly Val Gly Gly Glu Arg Ser
      35              40              45

```

```

Ser Arg Pro Ala Pro Ser Val Ala Pro Glu Pro Asp Gly Cys Pro Val
      50              55              60

```

```

Cys Val Trp Arg Gln His Ser Arg Glu Leu Arg Leu Glu Ser Ile Lys
      65              70              75              80

```

```

Ser Gln Ile Leu Ser Lys Leu Arg Leu Lys Glu Ala Pro Asn Ile Ser
      85              90              95

```

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Arg Glu Val Val Lys Gln Leu Leu Pro Lys Ala Pro Pro Leu Gln Gln
      100             105             110

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<211> 1341  
 <212> DNA  
 <213> Homo sapiens

<400> 63  
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 tggccctcg gaggggggtca ccgcagtgcc taccagtac cttggagaga tccacaactg 180  
 gaccgagctg cttgacctct tcaaccacac tttgtctgag tgccacgtgg agctcagcca 240  
 gagcaccaag cgcgtgggtcc tctttgccct ctacctggcc atgtttgtgg ttgggctggg 300  
 ggagaacctc ctggtgatat gcgtcaactg gcgcgggtca ggccgggcag ggctgatgaa 360  
 cctctacatc ctcaacatgg ccatcgcgga cctgggcatt gtccctgtctc tgcccgtgtg 420  
 gatgctggag gtcacgctgg actacacctg gctctggggc agcttctcct gccgcttcac 480  
 tcaactcttc tactttgtca acatgtatag cagcatcttc ttcctggtgt gcctcagtgt 540  
 cgaccgctat gtcacctca ccagcgctc cccctcctgg cagcgttacc agcaccgagt 600  
 gcggcggggc atgtgtgcag gcatctgggt cctctcggcc atcatccgc tgctgaggt 660  
 ggtccacatc cagctgggtg agggccctga gcccatgtgc ctcttcatgg caccttttga 720  
 aacgtacagc acctggggcc tggcgggtgg cctgtccacc accatcctgg gcttcctgct 780  
 gcccttcctc ctcatcacag tcttcaatgt gctgacagcc tgccggctgc ggcagccagg 840  
 acaaccaag agccggcgcc actgcttgct gctgtgcgcc tacgtggccg tctttgtcat 900  
 gtgctggctg ccctatcatg tgaccctgct gctgtctaca ctgcatggga cccacatctc 960  
 cctccactgc cacctgggtc acctgctcta cttcttctat gatgtcattg actgcttctc 1020  
 catgctgcac tgtgtcatca acccactcct ttacaacttt ctacagccac acttcgggg 1080  
 ccggtcctg aatgctgtag tccattacct tcctaaggac cagaccaagg cgggcacatg 1140  
 cgctcctct tctcctgtt ccaccagca ttccatcatc atcaccaagg gtgatagcca 1200  
 gcctgctgca gcagcccccc accctgagcc aagcctgagc ttccaggcac accatttgct 1260  
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 tcagcggccg ctgaattcta g 1341

<210> 64  
 <211> 404  
 <212> PRT  
 <213> Homo sapiens

<400> 64  
 Met Ser Val Lys Pro Ser Trp Gly Pro Gly Pro Ser Glu Gly Val Thr  
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 Ala Val Pro Thr Ser Asp Leu Gly Glu Ile His Asn Trp Thr Glu Leu  
 20 25 30  
 Leu Asp Leu Phe Asn His Thr Leu Ser Glu Cys His Val Glu Leu Ser  
 35 40 45  
 Gln Ser Thr Lys Arg Val Val Leu Phe Ala Leu Tyr Leu Ala Met Phe  
 50 55 60

Val	Val	Gly	Leu	Val	Glu	Asn	Leu	Leu	Val	Ile	Cys	Val	Asn	Trp	Arg	65	70	75	80
Gly	Ser	Gly	Arg	Ala	Gly	Leu	Met	Asn	Leu	Tyr	Ile	Leu	Asn	Met	Ala	85	90	95	
Ile	Ala	Asp	Leu	Gly	Ile	Val	Leu	Ser	Leu	Pro	Val	Trp	Met	Leu	Glu	100	105	110	
Val	Thr	Leu	Asp	Tyr	Thr	Trp	Leu	Trp	Gly	Ser	Phe	Ser	Cys	Arg	Phe	115	120	125	
Thr	His	Tyr	Phe	Tyr	Phe	Val	Asn	Met	Tyr	Ser	Ser	Ile	Phe	Phe	Leu	130	135	140	
Val	Cys	Leu	Ser	Val	Asp	Arg	Tyr	Val	Thr	Leu	Thr	Ser	Ala	Ser	Pro	145	150	155	160
Ser	Trp	Gln	Arg	Tyr	Gln	His	Arg	Val	Arg	Arg	Ala	Met	Cys	Ala	Gly	165	170	175	
Ile	Trp	Val	Leu	Ser	Ala	Ile	Ile	Pro	Leu	Pro	Glu	Val	Val	His	Ile	180	185	190	
Gln	Leu	Val	Glu	Gly	Pro	Glu	Pro	Met	Cys	Leu	Phe	Met	Ala	Pro	Phe	195	200	205	
Glu	Thr	Tyr	Ser	Thr	Trp	Ala	Leu	Ala	Val	Ala	Leu	Ser	Thr	Thr	Ile	210	215	220	
Leu	Gly	Phe	Leu	Leu	Pro	Phe	Pro	Leu	Ile	Thr	Val	Phe	Asn	Val	Leu	225	230	235	240
Thr	Ala	Cys	Arg	Leu	Arg	Gln	Pro	Gly	Gln	Pro	Lys	Ser	Arg	Arg	His	245	250	255	
Cys	Leu	Leu	Leu	Cys	Ala	Tyr	Val	Ala	Val	Phe	Val	Met	Cys	Trp	Leu	260	265	270	
Pro	Tyr	His	Val	Thr	Leu	Leu	Leu	Leu	Thr	Leu	His	Gly	Thr	His	Ile	275	280	285	
Ser	Leu	His	Cys	His	Leu	Val	His	Leu	Leu	Tyr	Phe	Phe	Tyr	Asp	Val	290	295	300	
Ile	Asp	Cys	Phe	Ser	Met	Leu	His	Cys	Val	Ile	Asn	Pro	Ile	Leu	Tyr	305	310	315	320

Asn Phe Leu Ser Pro His Phe Arg Gly Arg Leu Leu Asn Ala Val Val  
 325 330 335

His Tyr Leu Pro Lys Asp Gln Thr Lys Ala Gly Thr Cys Ala Ser Ser  
 340 345 350

Ser Ser Cys Ser Thr Gln His Ser Ile Ile Ile Thr Lys Gly Asp Ser  
 355 360 365

Gln Pro Ala Ala Ala Ala Pro His Pro Glu Pro Ser Leu Ser Phe Gln  
 370 375 380

Ala His His Leu Leu Pro Asn Thr Ser Pro Ile Ser Pro Thr Gln Pro  
 385 390 395 400

Leu Thr Pro Ser

<210> 65

<211> 945

<212> DNA

<213> Homo sapiens

<400> 65

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tacctggcca tgtttgtggt tgggctggtg gagaacctcc tggatgatag cgtcaactgg 240
cgcggtctag gccgggcagg gctgatgaac ctctacatcc tcaacatggc catcgcgagc 300
ctgggcattg tcctgtctct gcccggtgtg atgccggagg tcacgctgga ctacacctgg 360
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agcatcttct tcctggtgtg cctcagtgtc gaccgctatg tcacctcac aggacaacct 480
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cactgtgtca tcaaccccat cttttacaac tttctcagcc cacacttccg gggccggctc 720
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gcagcagcag cccccaccc tgagccaagc ctgagctttc aggcacacca tttgcttcca 900
aatacttccc ccatctctcc cactcagcct cttacacca gctga 945

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<210> 66

<211> 314

<212> PRT

<213> Homo sapiens



<400> 66

Met Ser Val Lys Pro Ser Trp Gly Pro Gly Pro Ser Glu Gly Val Thr  
1 5 10 15

Ala Val Pro Thr Ser Asp Leu Gly Glu Ile His Asn Trp Thr Glu Leu  
20 25 30

Leu Asp His Leu Phe Asn His Thr Leu Ser Glu Cys His Val Glu Leu  
35 40 45

Ser Gln Ser Thr Lys Arg Val Val Leu Phe Ala Leu Tyr Leu Ala Met  
50 55 60

Phe Val Val Gly Leu Val Glu Asn Leu Leu Val Ile Cys Val Asn Trp  
65 70 75 80

Arg Gly Ser Gly Arg Ala Gly Leu Met Asn Leu Tyr Ile Leu Asn Met  
85 90 95

Ala Ile Ala Asp Leu Gly Ile Val Leu Ser Leu Pro Val Trp Met Pro  
100 105 110

Glu Val Thr Leu Asp Tyr Thr Trp Leu Trp Gly Ser Phe Ser Cys Arg  
115 120 125

Phe Thr His Tyr Phe Tyr Phe Val Asn Met Tyr Ser Ser Ile Phe Phe  
130 135 140

Leu Val Cys Leu Ser Val Asp Arg Tyr Val Thr Leu Thr Gly Gln Pro  
145 150 155 160

Lys Ser Arg Arg His Cys Leu Leu Leu Cys Ala Tyr Val Ala Val Phe  
165 170 175

Val Met Cys Trp Leu Pro Tyr His Val Thr Leu Leu Leu Leu Thr Leu  
180 185 190

His Gly Thr His Ile Ser Leu His Cys His Leu Val His Leu Leu Tyr  
195 200 205

Phe Phe Tyr Asp Val Ile Asp Cys Phe Ser Met Leu His Cys Val Ile  
210 215 220

Asn Pro Ile Leu Tyr Asn Phe Leu Ser Pro His Phe Arg Gly Arg Leu  
225 230 235 240

Leu Asn Ala Val Val His Tyr Leu Pro Lys Asp Gln Thr Lys Ala Gly  
245 250 255

Thr Cys Ala Ser Ser Ser Ser Cys Ser Thr Gln His Ser Ile Ile Ile  
 260 265 270

Thr Lys Gly Asp Ser Gln Pro Ala Ala Ala Ala Ala Pro His Pro Glu  
 275 280 285

Pro Ser Leu Ser Phe Gln Ala His His Leu Leu Pro Asn Thr Ser Pro  
 290 295 300

Ile Ser Pro Thr Gln Pro Leu Thr Pro Ser  
 305 310

<210> 67  
 <211> 965  
 <212> DNA  
 <213> Homo sapiens

<400> 67  
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 ccagtgcact tggagagatc cacaactgga ccgagctgct tgacctcttc aaccacactt 120  
 tgtctgagtg ccacgtggag ctgagccaga gcaccaagcg cgtgggtctc ttgacctct 180  
 acctggccat gtttgtggtt gggctggtgg agaacctcct ggtgatatgc gtcaactggc 240  
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 tgggcattgt cctgtctctg cccgtgtgga tgctggaggt cagctggac tacacctggc 360  
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 atgggaccca catctccctc cactgccacc tgggccacct gctctacttc ttctatgatg 660  
 tcattgactg cttctccatg ctgcaactgt tcatcaaccc catcctttac aactttctca 720  
 gccacactt ccggggccgg ctctgaatg ctgtagtcca ttaccttcct aaggaccaga 780  
 ccaagggcgg gcacatgcgc ctctcttcc tctgttcca cccagcattc catcatcatc 840  
 accaaggtga tagccagcct gctgcagcag cccccaccc tgagccaagc ctgagctttc 900  
 aggcacacca tttgcttcca aatacttccc ccatctctcc cactcagcct cttacacca 960  
 gctga 965

<210> 68  
 <211> 320  
 <212> PRT  
 <213> Homo sapiens

<400> 68  
 Met Ser Val Lys Pro Ser Trp Gly Pro Gly Pro Ser Glu Gly Val Thr  
 1 5 10 15

Ala	Val	Pro	Thr	Ser	Asp	Leu	Gly	Glu	Ile	His	Asn	Trp	Thr	Glu	Leu			
			20					25					30					
Leu	Asp	Leu	Phe	Asn	His	Thr	Leu	Ser	Glu	Cys	His	Val	Glu	Leu	Ser			
		35					40					45						
Gln	Ser	Thr	Lys	Arg	Val	Val	Leu	Phe	Ala	Leu	Tyr	Leu	Ala	Met	Phe			
		50					55				60							
Val	Val	Gly	Leu	Val	Glu	Asn	Leu	Leu	Val	Ile	Cys	Val	Asn	Trp	Arg			
	65					70				75					80			
Gly	Ser	Gly	Arg	Ala	Gly	Leu	Met	Asn	Leu	Tyr	Ile	Leu	Asn	Met	Ala			
				85					90					95				
Ile	Ala	Asp	Leu	Gly	Ile	Val	Leu	Ser	Leu	Pro	Val	Trp	Met	Leu	Glu			
			100					105					110					
Val	Thr	Leu	Asp	Tyr	Thr	Trp	Leu	Trp	Gly	Ser	Phe	Ser	Cys	Arg	Phe			
		115					120					125						
Thr	His	Tyr	Phe	Tyr	Phe	Val	Asn	Met	Tyr	Ser	Ser	Ile	Phe	Phe	Leu			
		130					135					140						
Leu	Pro	Phe	Pro	Leu	Ile	Thr	Val	Phe	Asn	Val	Leu	Thr	Ala	Cys	Arg			
145					150					155					160			
Leu	Arg	Gln	Pro	Gly	Gln	Pro	Lys	Ser	Arg	Arg	His	Cys	Leu	Leu	Leu			
				165					170				175					
Cys	Ala	Tyr	Val	Ala	Val	Phe	Val	Met	Cys	Trp	Leu	Pro	Tyr	His	Val			
		180						185					190					
Thr	Leu	Leu	Leu	Leu	Thr	Leu	His	Gly	Thr	His	Ile	Ser	Leu	His	Cys			
	195						200					205						
His	Leu	Val	His	Leu	Leu	Tyr	Phe	Phe	Tyr	Asp	Val	Ile	Asp	Cys	Phe			
	210					215					220							
Ser	Met	Leu	His	Cys	Val	Ile	Asn	Pro	Ile	Leu	Tyr	Asn	Phe	Leu	Ser			
225					230					235					240			
Pro	His	Phe	Arg	Gly	Arg	Leu	Leu	Asn	Ala	Val	Val	His	Tyr	Leu	Pro			
				245					250					255				
Lys	Asp	Gln	Thr	Lys	Gly	Gly	His	Met	Arg	Leu	Leu	Phe	Leu	Leu	Phe			
			260					265					270					

His Pro Ala Phe His His His His Gln Gly Asp Ser Gln Pro Ala Ala  
275 280 285

Ala Ala Pro His Pro Glu Pro Ser Leu Ser Phe Gln Ala His His Leu  
290 295 300

Leu Pro Asn Thr Ser Pro Ile Ser Pro Thr Gln Pro Leu Thr Pro Ser  
305 310 315 320

<210> 69

<211> 549

<212> DNA

<213> Homo sapiens

<400> 69

tatttttttaa ctaaattaat acacctcgaa tgaaccaccc agctcctgtg aaagtcacat 60  
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tagaggagct taagaagtat ggagctacca caatagtaag agtatgtgaa gcaacttatg 180  
acactactct tgtggagaaa gaaggatatcc atgttctcaa ttggcctttt ggtgatggtg 240  
caccaccatc caaccagatt gttgctgatt ggttacattt tgtaaaaatt aagttttgtg 300  
aagaacctgg ttgttatatt gctgttaatt gcattgtagg ccttgggaaa gctccagtac 360  
ttgttgccct agcatcagtt gaagggtggaa tgaaacatga agatgcagta caattcatag 420  
gacaaaagcg gagtggagct tttaaaagca agcaactttt gtatttggag aagtatcatc 480  
ctaaaatgcg gctgcgcttc aaagattcca atagtcatat aaacaactgt tgcattcaat 540  
aaaactggg 549

<210> 70

<211> 170

<212> PRT

<213> Homo sapiens

<400> 70

Met Asn His Pro Ala Pro Val Lys Val Thr Tyr Lys Asn Met Arg Phe  
1 5 10 15

Pro Ile Thr His Asn Pro Thr Asn Val Thr Leu Asn Lys Phe Ile Glu  
20 25 30

Glu Leu Lys Lys Tyr Gly Ala Thr Thr Ile Val Arg Val Cys Glu Ala  
35 40 45

Thr Tyr Asp Thr Thr Leu Val Glu Lys Glu Gly Ile His Val Leu Asn  
50 55 60

Trp Pro Phe Gly Asp Gly Ala Pro Pro Ser Asn Gln Ile Val Ala Asp  
65 70 75 80

Trp Leu His Phe Val Lys Ile Lys Phe Cys Glu Glu Pro Gly Cys Tyr  
85 90 95

Ile Ala Val Asn Cys Ile Val Gly Leu Gly Lys Ala Pro Val Leu Val  
100 105 110

Ala Leu Ala Ser Val Glu Gly Gly Met Lys His Glu Asp Ala Val Gln  
115 120 125

Phe Ile Gly Gln Lys Arg Ser Gly Ala Phe Lys Ser Lys Gln Leu Leu  
130 135 140

Tyr Leu Glu Lys Tyr His Pro Lys Met Arg Leu Arg Phe Lys Asp Ser  
145 150 155 160

Asn Ser His Ile Asn Asn Cys Cys Ile Gln  
165 170

<210> 71

<211> 850

<212> DNA

<213> Homo sapiens

<400> 71

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cttaagaagt atggagctac cacaatagta agagtatgtg aagcaactta tgacactact 180  
cttgtggaga aagaaggat ccattgttctc aattggcctt ttggtgatgg tgcaccacca 240  
tccaaccaga ttgttgctga ttggttacat tttgtaaaaa ttaagttttg tgaagaacct 300  
ggttggtata ttgctgttaa ttgcattgta ggccttgga aagctccagt acttggtgcc 360  
ctagcatcag ttgaagggtg aatgaaacat gaagatgcag tacaattcat aggacaaaag 420  
cggagtggag cttttaaaag caagcaactt ttgtatttgg agaagtatca tcctaaaatg 480  
cggctgcgct tcaaagattc caatagtgtc gcgcttcaaa gattccaata gtgctgcgct 540  
tcaaagattc caatagtgtc gcgcttcaaa gattccaata gtgctgcgct tcaaagattc 600  
caatagtgtc gcgcttcaaa gattccaata gtgctgcgct tcaaagattc caatagtgtc 660  
gcgcttcaaa gattccaata gtgctgcgct tcaaagattc caatagtgtc gcgcttcaaa 720  
gattccaata gtgctgcgct tcaaagattc caatagtgtc gcgcttcaaa gattccaata 780  
gtgctgcgct tcaaagattc caatagtgtc gcgcttcaaa gattccaata gtgctgcgct 840  
tcaaagattc 850

<210> 72

<211> 176

<212> PRT

<213> Homo sapiens

<400> 72

Met Asn His Pro Ala Pro Val Met Asn His Pro Ala Pro Val Lys Val  
1 5 10 15

Thr Tyr Lys Asn Met Arg Phe Pro Ile Thr His Asn Pro Thr Asn Val  
20 25 30

Thr Leu Asn Lys Phe Ile Glu Glu Leu Lys Lys Tyr Gly Ala Thr Thr  
35 40 45

Ile Val Arg Val Cys Glu Ala Thr Tyr Asp Thr Thr Leu Val Glu Lys  
50 55 60

Glu Gly Ile His Val Leu Asn Trp Pro Phe Gly Asp Gly Ala Pro Pro  
65 70 75 80

Ser Asn Gln Ile Val Ala Asp Trp Leu His Phe Val Lys Ile Lys Phe  
85 90 95

Cys Glu Glu Pro Gly Cys Tyr Ile Ala Val Asn Cys Ile Val Gly Leu  
100 105 110

Gly Lys Ala Pro Val Leu Val Ala Leu Ala Ser Val Glu Gly Gly Met  
115 120 125

Lys His Glu Asp Ala Val Gln Phe Ile Gly Gln Lys Arg Ser Gly Ala  
130 135 140

Phe Lys Ser Lys Gln Leu Leu Tyr Leu Glu Lys Tyr His Pro Lys Met  
145 150 155 160

Arg Leu Arg Phe Lys Asp Ser Asn Ser Ala Ala Leu Gln Arg Phe Gln  
165 170 175

<210> 73

<211> 1144

<212> DNA

<213> Homo sapiens

<400> 73

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atggacgcgc ccaccagcgc cgcagtcacg cgcgcccttc tggagcgcgg ccacaccgag 180
atagacacgg ccttcctgta cagcgacggc cagtccgaga ccatccttgg cggcctgggg 240
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gggaactccc tgaagcctga cagtgtccga tcccagctgg agacgtcact gaagcggctg 360
cagtgtccca gagtggacct cttctatcta catgcacctg accacagcgc cccggtggaa 420
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tccaactatg ccgcctggga agtggccgag atctgtaccc tctgcaagag caacggctgg 540
atcctgccca ctgtgtacca gggcatgtac agcgccacca cccggcaggt ggaaacggag 600
ctcttccctt gcctcaggca ctttggactg aggttctatg cctacaaccc tctggctgac 660
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tgcc 1144

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<210> 74

<211> 355

<212> PRT

<213> Homo sapiens

<400> 74

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Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala
 1             5             10             15

```

```

Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr
      20             25             30

```

```

Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Leu
      35             40             45

```

```

Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg
      50             55             60

```

```

Met Gly Ser Ser Asp Cys Arg Val Lys Ile Ala Thr Lys Ala Asn Pro
      65             70             75             80

```

```

Trp Ile Gly Asn Ser Leu Lys Pro Asp Ser Val Arg Ser Gln Leu Glu
      85             90             95

```

```

Thr Ser Leu Lys Arg Leu Gln Cys Pro Arg Val Asp Leu Phe Tyr Leu
      100            105            110

```

His Ala Pro Asp His Ser Ala Pro Val Glu Glu Thr Leu Arg Ala Cys  
 115 120 125

His Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn  
 130 135 140

Tyr Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn  
 145 150 155 160

Gly Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Ser Ala Thr Thr  
 165 170 175

Arg Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu  
 180 185 190

Arg Phe Tyr Ala Tyr Asn Pro Leu Ala Asp Gln Ser Pro Glu Gly Cys  
 195 200 205

Gly Ser Phe Trp Gly Thr Leu Gly Pro Gly Ala Asp Cys Cys Leu Pro  
 210 215 220

Ala Gly Gly Leu Leu Thr Gly Lys Tyr Lys Tyr Glu Asp Lys Asp Gly  
 225 230 235 240

Lys Gln Pro Val Gly Arg Phe Phe Gly Thr Gln Trp Ala Glu Ile Tyr  
 245 250 255

Arg Asn Gln Phe Trp Lys Glu His His Phe Glu Gly Ile Ala Leu Val  
 260 265 270

Glu Lys Ala Leu Gln Ala Ala Tyr Gly Ala Ser Ala Pro Ser Met Thr  
 275 280 285

Ser Ala Ala Leu Arg Trp Met Tyr His His Ser Gln Leu Gln Gly Ala  
 290 295 300

His Gly Asp Ala Val Ile Leu Gly Met Ser Ser Leu Glu Gln Leu Glu  
 305 310 315 320

Gln Asn Leu Ala Ala Ala Glu Glu Gly Pro Leu Glu Pro Ala Val Val  
 325 330 335

Asp Ala Phe Asn Gln Ala Trp His Leu Phe Ala His Glu Cys Pro Asn  
 340 345 350

Tyr Phe Ile  
 355



<210> 75  
 <211> 2171  
 <212> DNA  
 <213> Homo sapiens

<400> 75  
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 ccaccctcag gatttccgag acccccctgc ccattcggac ctgggcagtg tccgaacctt 540  
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 cttggccgcc ccgcagaggc cgcagcggct ggagaagtgg atccgcctcg cccagcgtg 1020  
 ccgagaactg cggaaacttct cctccttgcg cgccatcctg tccgccctgc aatctaacc 1080  
 catctaccgg ctcaagcgca gctggggggc agtgagccgg gaaccgctat ctactttcag 1140  
 gaaactttcg cagattttct ccgatgagaa caaccacctc agcagcagag agattctttt 1200  
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 aaaaccaccc ccaggccctg tcccctacct tggcaccttc cttacggacc tggttatgct 1320  
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 gccccagccc tgggcctgtg actatcagct ctttcaagtc cttcctgggg accggctcct 2040  
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 gctgcggcgg aaagagggga cccggaacac tctgtctgtc tcccgaagct gaggcagccc 2160  
 tgtcctctcc a 2171

<210> 76  
 <211> 708

<212> PRT

<213> Homo sapiens

<400> 76

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Gly	Glu	Glu	Thr	Glu	Asp	Gly	Ala	Val	Tyr	Ser	Val	Ser	Leu	Arg	Arg
			20					25					30		
Gln	Arg	Ser	Gln	Arg	Ser	Asp	His	Gln	Arg	Ser	Gly	Val	Gly	Gln	Ala
		35					40					45			
Pro	Ser	Pro	Ile	Ala	Asn	Thr	Phe	Leu	His	Tyr	Arg	Thr	Ser	Lys	Val
	50					55					60				
Arg	Val	Leu	Arg	Ala	Ala	Arg	Leu	Glu	Arg	Leu	Val	Gly	Glu	Leu	Val
65					70					75					80
Phe	Gly	Asp	Arg	Glu	Gln	Asp	Pro	Ser	Phe	Met	Pro	Ala	Phe	Leu	Ala
				85					90					95	
Thr	Tyr	Arg	Thr	Phe	Val	Pro	Thr	Ala	Cys	Leu	Leu	Gly	Phe	Leu	Leu
			100					105					110		
Pro	Pro	Met	Pro	Pro	Pro	Pro	Pro	Pro	Gly	Val	Glu	Ile	Lys	Lys	Thr
		115						120				125			
Ala	Val	Gln	Asp	Leu	Ser	Phe	Asn	Lys	Asn	Leu	Arg	Ala	Val	Val	Ser
	130					135					140				
Val	Leu	Gly	Ser	Trp	Leu	Gln	Asp	His	Pro	Gln	Asp	Phe	Arg	Asp	Pro
145					150					155					160
Pro	Ala	His	Ser	Asp	Leu	Gly	Ser	Val	Arg	Thr	Phe	Leu	Gly	Trp	Ala
				165					170					175	
Ala	Pro	Gly	Ser	Ala	Glu	Ala	Gln	Lys	Ala	Glu	Lys	Leu	Leu	Glu	Asp
			180					185					190		
Phe	Leu	Glu	Glu	Ala	Glu	Arg	Glu	Gln	Glu	Glu	Glu	Pro	Pro	Gln	Val
	195						200					205			
Trp	Ser	Gly	Pro	Pro	Arg	Val	Ala	Gln	Thr	Ser	Asp	Pro	Asp	Ser	Ser
	210						215				220				
Glu	Ala	Cys	Ala	Glu	Glu	Glu	Glu	Gly	Leu	Met	Pro	Gln	Gly	Pro	Gln
225					230					235					240

Leu Leu Asp Phe Ser Val Asp Glu Val Ala Glu Gln Leu Thr Leu Ile  
 245 250 255  
 Asp Leu Glu Leu Phe Ser Lys Val Arg Leu Tyr Glu Cys Leu Gly Ser  
 260 265 270  
 Val Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ala Ser Pro Thr  
 275 280 285  
 Val Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly Cys Val Leu  
 290 295 300  
 Gly Ser Val Leu Gly Ala Pro Gly Leu Ala Ala Pro Gln Arg Ala Gln  
 305 310 315 320  
 Arg Leu Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg Glu Leu Arg  
 325 330 335  
 Asn Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln Ser Asn Pro  
 340 345 350  
 Ile Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg Glu Pro Leu  
 355 360 365  
 Ser Thr Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu Asn Asn His  
 370 375 380  
 Leu Ser Ser Arg Glu Ile Leu Phe Gln Glu Glu Ala Thr Glu Gly Ser  
 385 390 395 400  
 Gln Glu Glu Asp Asn Thr Pro Gly Ser Leu Pro Ser Lys Pro Pro Pro  
 405 410 415  
 Gly Pro Val Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu  
 420 425 430  
 Asp Thr Ala Leu Pro Asp Met Leu Glu Gly Asp Leu Ile Asn Phe Glu  
 435 440 445  
 Lys Arg Arg Lys Glu Trp Glu Ile Leu Ala Arg Ile Gln Gln Leu Gln  
 450 455 460  
 Arg Arg Cys Gln Ser Tyr Thr Leu Ser Pro His Pro Pro Ile Leu Ala  
 465 470 475 480  
 Ala Leu His Ala Gln Asn Gln Leu Thr Glu Glu Gln Ser Tyr Arg Leu  
 485 490 495

Ser Arg Val Ile Glu Pro Pro Ala Ala Ser Cys Pro Ser Ser Pro Arg  
500 505 510

Ile Arg Arg Arg Ile Ser Leu Thr Lys Arg Leu Ser Ala Lys Leu Ala  
515 520 525

Arg Glu Lys Ser Ser Ser Pro Ser Gly Ser Pro Gly Asp Pro Ser Ser  
530 535 540

Pro Thr Ser Ser Val Ser Pro Gly Ser Pro Pro Ser Ser Pro Arg Ser  
545 550 555 560

Arg Asp Ala Pro Ala Gly Ser Pro Pro Ala Ser Pro Gly Pro Gln Gly  
565 570 575

Pro Ser Thr Lys Leu Pro Leu Ser Leu Asp Leu Pro Ser Pro Arg Ser  
580 585 590

Pro Val Thr Leu Asp Pro Phe Ser Ala Arg Val Pro Leu Pro Ala Gln  
595 600 605

Gln Ser Ser Glu Ala Arg Val Ile Arg Val Ser Ile Asp Asn Asp His  
610 615 620

Gly Asn Leu Tyr Arg Ser Ile Leu Leu Thr Ser Gln Asp Lys Ala Pro  
625 630 635 640

Ser Val Val Arg Arg Ala Leu Gln Lys His Asn Val Pro Gln Pro Trp  
645 650 655

Ala Cys Asp Tyr Gln Leu Phe Gln Val Leu Pro Gly Asp Arg Leu Leu  
660 665 670

Ile Pro Asp Asn Ala Asn Val Phe Tyr Ala Met Ser Pro Val Ala Pro  
675 680 685

Arg Asp Phe Met Leu Arg Arg Lys Glu Gly Thr Arg Asn Thr Leu Ser  
690 695 700

Val Ser Pro Ser  
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<210> 77

<211> 717

<212> DNA

<213> Homo sapiens

<400> 77

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ctgcctgggc gtgctctgcg tgctgtccgc ggacaagaac acgaccagc acccgaacgt 180
gacgacttta gcgcccattt ccaacgtaaa atcattgatt tcatgcatct ctccccccaa 240
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taatactacc tgcttttggg tagaatgtcc cccaacagat gagagctatt gttcacataa 360
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tgtgcaggct gtaattttct ttctttataa attctgcaaa tctaaagaac gaaattacca 660
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<210> 78

<211> 195

<212> PRT

<213> Homo sapiens

<400> 78

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Met Ser Arg Leu Ser Arg Ser Leu Leu Trp Ala Ala Thr Cys Leu Gly
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Val Leu Cys Val Leu Ser Ala Asp Lys Asn Thr Thr Gln His Pro Asn
      20              25              30

Val Thr Thr Leu Ala Pro Ile Ser Asn Val Lys Ser Leu Ile Ser Cys
      35              40              45

Ile Ser Pro Pro Asn Ser Pro Glu Thr Cys Glu Gly Arg Asn Ser Cys
      50              55              60

Val Ser Cys Phe Asn Val Ser Val Val Asn Thr Thr Cys Phe Trp Ile
      65              70              75              80

Glu Cys Pro Pro Thr Asp Glu Ser Tyr Cys Ser His Asn Ser Thr Val
      85              90              95

Ser Asp Cys Gln Val Gly Asn Thr Thr Asp Phe Cys Ser Gly Lys Tyr
      100              105              110

Ser Tyr Trp Leu Leu Gly Ser Ile Pro Ala Lys Pro Thr Val Gln Pro
      115              120              125

Ser Pro Ser Thr Thr Ser Lys Thr Val Thr Thr Ser Gly Thr Thr Asn
      130              135              140
```

Asn Thr Val Thr Pro Thr Ser Gln Pro Val Arg Lys Ser Thr Phe Asp  
 145 150 155 160

Ala Ala Ser Phe Ile Gly Gly Ile Val Leu Val Leu Gly Val Gln Ala  
 165 170 175

Val Ile Phe Phe Leu Tyr Lys Phe Cys Lys Ser Lys Glu Arg Asn Tyr  
 180 185 190

His Thr Leu  
 195

<210> 79

<211> 2082

<212> DNA

<213> Homo sapiens

<400> 79

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 cattggcaag tgactgtcta ttcacatctc tcttctgtt gttgagtgag tgagggaggg 180  
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 ctgcatgtgc tgtcacggcc atttgggggc tatatcctgt ctcttagagg acagggacta 300  
 aatctctcaa attcagggtt ctctgtgtc cctacctggg gcccgggccg ggctgttttt 360  
 ctctgtttca aatgccaggg ctacttatgg actcctattc aacctgcaaa accctacttg 420  
 aatgctccct cagttctgaa gcctccctgg ctgctccttc cagcctcccc acaacaacaa 480  
 cagcaccacc actatataat ggctaaatct gttgagcagt tgccatgggc cagacactgt 540  
 gctgagtaca tggatatgtt ttcttcttta atcctcaciaa cccctcgagt cagccccaag 600  
 ctaggctacc ctttggcaaa ttcacatcat tattcaatca agagcctctg gggagaaaag 660  
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 cctgtacctc caggaggcag cgtgagaatt aaaaaggacc ctgaacttgt ggtgaccgac 780  
 ctgctgtttg ggacgatacc cgtgaggctg ttccagccga aggcagcatc ctccagaccc 840  
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 catggcctgt gcaattatct ggcccgggag actgaatctg tacttctgat gattgggtac 960  
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 gaaagcgtcg gaggtgcagc ggtggccgcc atcaccagg ccttgggtggg cagatcagat 1140  
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 agcactaaca atgtccattg ctggatctag cgacattctc taacattccc atttaggtga 1980  
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 gatctgtgca gaataaatgc caacaactgg tcataccgtc aa 2082

<210> 80  
 <211> 410  
 <212> PRT  
 <213> Homo sapiens

<400> 80  
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 Tyr Met Asp Met Phe Ser Ser Leu Ile Leu Thr Thr Pro Arg Val Ser  
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 Pro Lys Leu Gly Tyr Pro Leu Ala Asn Ser His His Tyr Ser Ile Lys  
 35 40 45  
 Ser Leu Trp Gly Glu Lys Leu Glu Asn Pro Ala Leu Tyr Leu Asp Thr  
 50 55 60  
 Val Gln Ser Leu Trp Ile Pro Glu Glu Pro Pro Val Pro Thr Gly Gly  
 65 70 75 80  
 Ser Val Arg Ile Lys Lys Asp Pro Glu Leu Val Val Thr Asp Leu Arg  
 85 90 95  
 Phe Gly Thr Ile Pro Val Arg Leu Phe Gln Pro Lys Ala Ala Ser Ser  
 100 105 110  
 Arg Pro Arg Arg Gly Ile Ile Phe Tyr His Gly Gly Ala Thr Val Phe  
 115 120 125  
 Gly Ser Leu Asp Cys Tyr His Gly Leu Cys Asn Tyr Leu Ala Arg Glu  
 130 135 140  
 Thr Glu Ser Val Leu Leu Met Ile Gly Tyr Arg Lys Leu Pro Asp His  
 145 150 155 160  
 His Ser Pro Ala Leu Phe Gln Asp Cys Met Asn Ala Ser Ile His Phe  
 165 170 175

Leu Lys Ala Leu Glu Thr Tyr Gly Val Asp Pro Ser Arg Val Val Val  
 180 185 190  
 Cys Gly Glu Ser Val Gly Gly Ala Ala Val Ala Ala Ile Thr Gln Ala  
 195 200 205  
 Leu Val Gly Arg Ser Asp Leu Pro Arg Ile Arg Ala Gln Val Leu Ile  
 210 215 220  
 Tyr Pro Val Val Gln Ala Phe Cys Leu Gln Ser Pro Ser Phe Gln Gln  
 225 230 235 240  
 Asn Gln Asn Val Pro Leu Leu Ser Arg Lys Phe Met Val Thr Ser Leu  
 245 250 255  
 Cys Asn Tyr Leu Ala Ile Asp Leu Ser Trp Arg Asp Ala Ile Leu Asn  
 260 265 270  
 Gly Thr Cys Val Pro Pro Asp Val Trp Arg Lys Tyr Glu Lys Trp Leu  
 275 280 285  
 Thr Pro Asp Asn Ile Pro Lys Lys Phe Lys Asn Thr Gly Tyr Gln Pro  
 290 295 300  
 Trp Ser Pro Gly Pro Phe Asn Glu Ala Ala Tyr Leu Glu Ala Lys His  
 305 310 315 320  
 Met Leu Asp Val Glu Asn Ser Pro Leu Ile Ala Asp Asp Glu Val Ile  
 325 330 335  
 Ala Gln Leu Pro Glu Ala Phe Leu Val Ser Cys Glu Asn Asp Ile Leu  
 340 345 350  
 Arg Asp Asp Ser Leu Leu Tyr Lys Lys Arg Leu Glu Asp Gln Gly Val  
 355 360 365  
 Arg Val Thr Trp Tyr His Leu Tyr Asp Gly Phe His Gly Ser Ile Ile  
 370 375 380  
 Phe Phe Asp Lys Lys Ala Leu Ser Phe Pro Cys Ser Leu Lys Ile Val  
 385 390 395 400  
 Asn Ala Val Val Ser Tyr Ile Lys Gly Ile  
 405 410

<210> 81

<211> 1008



<212> DNA

<213> Homo sapiens

<400> 81

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cttgattccc gccttcactc acccatgtac ttcttcctct gcaacttctc cctcatggag 180
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ggagaccag cagcctgtag gtgagagggt gagcccttga cagggtaga gagcacctga 960
caagtcacga ggagtagact tgctgcaggt gggcaccac atgcctaa 1008
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<210> 82

<211> 307

<212> PRT

<213> Homo sapiens

<400> 82

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Leu Phe Ala Leu Ile Leu Leu Ile Tyr Val Leu Met Leu Leu Gly Asn
      20             25             30

Leu Ala Ile Ile Ser Phe Ile Cys Leu Asp Ser Arg Leu His Ser Pro
      35             40             45

Met Tyr Phe Phe Leu Cys Asn Phe Ser Leu Met Glu Met Val Val Thr
      50             55             60

Ser Thr Val Val His Arg Met Leu Ala Asp Leu Leu Ser Thr His Lys
      65             70             75             80

Thr Met Ser Leu Ala Lys Cys Leu Thr Gln Ser Phe Phe Tyr Phe Ser
      85             90             95

Leu Gly Ser Ala Asn Phe Leu Ile Leu Met Val Met Ala Phe Asp Arg
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100	105	110
Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Pro Thr Ile Thr Asn Gly		
115	120	125
Pro Val Cys Val Lys Leu Val Val Ala Cys Trp Val Val Gly Phe Leu		
130	135	140
Ser Ile Val Ser Pro Thr Leu Gln Lys Thr Arg Leu Trp Phe Cys Gly		
145	150	155
Pro Asn Ile Ile Gly His Tyr Phe Cys Asp Ser Ala Pro Leu Leu Lys		
165	170	175
Leu Ala Cys Ser Asp Thr Arg His Ile Glu Arg Met Asp Leu Phe Leu		
180	185	190
Ser Leu Leu Phe Val Leu Thr Thr Met Leu Leu Ile Ile Leu Ser Tyr		
195	200	205
Ile Leu Ile Val Ala Ala Val Leu His Ile Pro Ser Ser Ser Gly Cys		
210	215	220
Gln Lys Ala Phe Ser Thr Cys Ala Pro His Leu Thr Val Val Val Leu		
225	230	235
Gly Tyr Gly Ser Ala Ile Phe Ile Tyr Val Arg Pro Gly Lys Gly His		
245	250	255
Ser Thr Tyr Leu Asn Lys Ala Val Ala Met Val Thr Ala Met Val Thr		
260	265	270
Pro Phe Leu Asn Pro Phe Ile Phe Thr Phe Arg Asn Glu Lys Val Lys		
275	280	285
Glu Val Ile Glu Asp Val Thr Lys Arg Ile Phe Leu Gly Asp Pro Ala		
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Ala Cys Arg		
305		

<210> 83

<211> 2233

<212> DNA

<213> Homo sapiens

<400> 83

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<210> 84

<211> 528

<212> PRT

<213> Homo sapiens

<400> 84

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10

15

Cys	Thr	Ala	Val	Leu	Glu	Asn	Leu	Phe	Phe	Ser	Ala	Val	Leu	Leu	Gly			
			20					25					30					
Trp	Gly	Ser	Leu	Leu	Ile	Ile	Leu	Lys	Asn	Glu	Gly	Phe	Tyr	Ser	Ser			
		35					40					45						
Thr	Cys	Pro	Ala	Glu	Ser	Ser	Thr	Asn	Thr	Thr	Gln	Asp	Glu	Gln	Arg			
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Arg	Trp	Pro	Gly	Cys	Asp	Gln	Gln	Asp	Glu	Met	Leu	Asn	Leu	Gly	Phe			
65					70					75					80			
Thr	Ile	Gly	Ser	Phe	Val	Leu	Ser	Ala	Thr	Thr	Leu	Pro	Leu	Gly	Ile			
				85					90					95				
Leu	Met	Asp	Arg	Phe	Gly	Pro	Arg	Pro	Val	Arg	Leu	Val	Gly	Ser	Ala			
			100					105					110					
Cys	Phe	Thr	Ala	Ser	Cys	Thr	Leu	Met	Ala	Leu	Ala	Ser	Arg	Asp	Val			
		115					120					125						
Glu	Ala	Leu	Ser	Pro	Leu	Ile	Phe	Leu	Ala	Leu	Ser	Leu	Asn	Gly	Phe			
	130					135					140							
Gly	Gly	Ile	Cys	Leu	Thr	Phe	Thr	Ser	Leu	Lys	Leu	Ile	Tyr	Asp	Ala			
145					150					155					160			
Gly	Val	Ala	Phe	Val	Val	Ile	Met	Phe	Thr	Trp	Ser	Gly	Leu	Ala	Cys			
			165					170					175					
Leu	Ile	Phe	Leu	Asn	Cys	Thr	Leu	Asn	Trp	Pro	Ile	Glu	Ala	Phe	Pro			
		180						185					190					
Ala	Pro	Glu	Glu	Val	Asn	Tyr	Thr	Lys	Lys	Ile	Lys	Leu	Ser	Gly	Leu			
		195					200					205						
Ala	Leu	Asp	His	Lys	Val	Thr	Gly	Asp	Leu	Phe	Tyr	Thr	His	Val	Thr			
	210					215					220							
Thr	Met	Gly	Gln	Arg	Leu	Ser	Gln	Lys	Ala	Pro	Ser	Leu	Glu	Asp	Gly			
225					230					235					240			
Ser	Asp	Ala	Phe	Met	Ser	Pro	Gln	Asp	Val	Arg	Gly	Thr	Ser	Glu	Asn			
			245						250					255				
Leu	Pro	Glu	Arg	Ser	Val	Pro	Leu	Arg	Lys	Ser	Leu	Cys	Ser	Pro	Thr			
		260						265					270					

Phe Leu Trp Ser Leu Leu Thr Met Cys Met Thr Gln Leu Arg Ile Ile  
275 280 285

Phe Tyr Met Ala Ala Val Asn Lys Met Leu Glu Tyr Leu Val Thr Gly  
290 295 300

Gly Gln Glu His Glu Thr Asn Glu Gln Gln Gln Lys Val Ala Glu Thr  
305 310 315 320

Val Gly Phe Tyr Ser Ser Val Phe Gly Ala Met Gln Leu Leu Cys Leu  
325 330 335

Leu Thr Cys Pro Leu Ile Gly Tyr Ile Met Asp Trp Arg Ile Lys Asp  
340 345 350

Cys Val Asp Ala Pro Thr Gln Gly Thr Val Leu Gly Asp Ala Arg Asp  
355 360 365

Gly Val Ala Thr Lys Ser Ile Arg Pro Arg Tyr Cys Lys Ile Gln Lys  
370 375 380

Leu Thr Asn Ala Ile Ser Ala Phe Thr Leu Thr Asn Leu Leu Leu Val  
385 390 395 400

Gly Phe Gly Ile Thr Cys Leu Ile Asn Asn Leu His Leu Gln Phe Val  
405 410 415

Thr Phe Val Leu His Thr Ile Val Arg Gly Phe Phe His Ser Ala Cys  
420 425 430

Gly Ser Leu Tyr Ala Ala Val Phe Pro Ser Asn His Phe Gly Thr Leu  
435 440 445

Thr Gly Leu Gln Ser Leu Ile Ser Ala Val Phe Ala Leu Leu Gln Gln  
450 455 460

Pro Leu Phe Met Ala Met Val Gly Pro Leu Lys Gly Glu Pro Phe Trp  
465 470 475 480

Val Asn Leu Gly Leu Leu Leu Phe Ser Leu Leu Gly Phe Leu Leu Pro  
485 490 495

Ser Tyr Leu Phe Tyr Tyr Arg Ala Arg Leu Gln Gln Glu Tyr Ala Ala  
500 505 510

Asn Gly Met Gly Pro Leu Lys Val Leu Ser Gly Ser Glu Val Thr Ala  
515 520 525

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 <211> 415  
 <212> DNA  
 <213> Homo sapiens

<400> 85  
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 aagagctggg ctgcttcgtg ggcaccgccg aagcgctgcg ctgccaggag gagaactacc 180  
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 tgggcctctg ctgcagcccg gacggctgcc acgccgaccc tgctgcgac gcggaagcca 300  
 ccttctccca gcgctgaaac ttgatggctc cgaacaccct cgaagcgcgc cactcgcttc 360  
 ccccatagcc accccagaaa tggtgaaaat aaaataaagc aggtttttct cctct 415

<210> 86  
 <211> 99  
 <212> PRT  
 <213> Homo sapiens

<400> 86  
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 Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala  
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 Ala Pro Glu Glu Leu Gly Cys Phe Val Gly Thr Ala Glu Ala Leu Arg  
 35 40 45  
 Cys Gln Glu Glu Asn Tyr Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys  
 50 55 60  
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 65 70 75 80  
 Pro Asp Gly Cys His Ala Asp Pro Ala Cys Asp Ala Glu Ala Thr Phe  
 85 90 95  
 Ser Gln Arg

<210> 87  
 <211> 201  
 <212> DNA  
 <213> Homo sapiens

<400> 87  
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 gagaaattca gtaagtcgaa actgaagaag acagaaatgc aagagaaaaa tccacagcct 120  
 tccaaggaat ggatcgaaca ggagaagcaa gcaggcttcg taatgaggcg tgcataacca 180  
 atatgcacta agggcgaata a 201

<210> 88  
 <211> 50  
 <212> PRT  
 <213> Homo sapiens

<400> 88  
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 Met Gln Glu Lys Asn Pro Gln Pro Ser Lys Glu Trp Ile Glu Gln Glu  
                   20                  25                  30  
 Lys Gln Ala Gly Phe Val Met Arg Arg Ala Ser Pro Ile Cys Thr Lys  
           35                  40                  45  
 Gly Glu  
       50

<210> 89  
 <211> 246  
 <212> DNA  
 <213> Homo sapiens

<400> 89  
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 tccaaggaat ggatcgaaca ggagaagcaa gcaggcttcg taatgaggcg tgcataacca 180  
 atatgcactg ttcattccac aaagcattgc tttctatattt acttctttta gctgtttaac 240  
 tttgaa 246

<210> 90  
 <211> 66  
 <212> PRT  
 <213> Homo sapiens

<400> 90

Met Ser Asp Lys Ser Asn Met Asp Glu Ile Glu Lys Phe Ser Lys Ser  
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Lys Leu Lys Lys Thr Glu Met Gln Glu Lys Asn Pro Gln Pro Ser Lys  
20 25 30

Glu Trp Ile Glu Gln Glu Lys Gln Ala Gly Phe Val Met Arg Arg Ala  
35 40 45

Ser Pro Ile Cys Thr Val His Ser Thr Lys His Cys Phe Leu Phe Tyr  
50 55 60

Phe Phe  
65

<210> 91

<211> 201

<212> DNA

<213> Homo sapiens

<400> 91

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tccaaggaat ggatcgaaca ggagaagcaa gcaggcttcg taatgaggcg tgcacacca 180  
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<210> 92

<211> 56

<212> PRT

<213> Homo sapiens

<400> 92

Met Ser Asp Lys Ser Asn Met Asp Glu Ile Glu Lys Phe Ser Lys Ser  
1 5 10 15

Lys Leu Lys Lys Thr Glu Met Gln Glu Lys Asn Pro Gln Pro Ser Lys  
20 25 30

Glu Trp Ile Glu Gln Glu Lys Gln Ala Gly Phe Val Met Arg Arg Ala  
35 40 45

Ser Pro Ile Cys Thr Lys Gly Glu  
50 55



<210> 93  
 <211> 457  
 <212> DNA  
 <213> Homo sapiens

<400> 93  
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 gccgtttggc aaaaccact gtgaccatca gtacagatgg agatgtcatc acaataaaaa 180  
 ccaaagcat ctttaaaaat aatgagatct cctttaagct gggagaagag tttgaggaaa 240  
 tcacgccagg tggccacaaa acaaagagta aagtaacctt agataaggag tccctgattc 300  
 aagttcagga ctgggatggc aaagaaacca ccataacgag aaagctgggt gatgggaaaa 360  
 tggtggtgga aagtactgtg aacagtgtta tctgtacacg aacatacgag aaagtatcat 420  
 caaactcagt ctcaaactct taaggctttc tcaagct 457

<210> 94  
 <211> 140  
 <212> PRT  
 <213> Homo sapiens

<400> 94  
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 20 25 30  
 Leu Gly Arg Leu Ala Lys Pro Thr Val Thr Ile Ser Thr Asp Gly Asp  
 35 40 45  
 Val Ile Thr Ile Lys Thr Lys Ser Ile Phe Lys Asn Asn Glu Ile Ser  
 50 55 60  
 Phe Lys Leu Gly Glu Glu Phe Glu Glu Ile Thr Pro Gly Gly His Lys  
 65 70 75 80  
 Thr Lys Ser Lys Val Thr Leu Asp Lys Glu Ser Leu Ile Gln Val Gln  
 85 90 95  
 Asp Trp Asp Gly Lys Glu Thr Thr Ile Thr Arg Lys Leu Val Asp Gly  
 100 105 110  
 Lys Met Val Val Glu Ser Thr Val Asn Ser Val Ile Cys Thr Arg Thr  
 115 120 125  
 Tyr Glu Lys Val Ser Ser Asn Ser Val Ser Asn Ser

130

135

140

&lt;210&gt; 95

&lt;211&gt; 408

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 95

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gacactaaga tctccttcaa gctgggggaa gaatttgatg aaactacagc agacaaccgg 240
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ggcaaagaga caacaatcaa aagaaaaatt gtggatgaaa aaatggtagt ggaatgtaaa 360
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&lt;210&gt; 96

&lt;211&gt; 130

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 96

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Met Val Glu Pro Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn
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Phe Glu Asp Tyr Met Lys Glu Leu Gly Phe Ala Ala Arg Asn Met Ala
      20             25             30

Gly Leu Val Lys Pro Thr Val Thr Ile Ser Val Asp Gly Lys Met Met
      35             40             45

Thr Ile Arg Thr Glu Ser Ser Phe Gln Asp Thr Lys Ile Ser Phe Lys
      50             55             60

Leu Gly Glu Glu Phe Asp Glu Thr Thr Ala Asp Asn Arg Lys Val Lys
      65             70             75             80

Ser Thr Ile Thr Leu Glu Asn Gly Ser Met Ile His Val Gln Lys Trp
      85             90             95

Leu Gly Lys Glu Thr Thr Ile Lys Arg Lys Ile Val Asp Glu Lys Met
      100            105            110

Val Val Glu Cys Lys Met Asn Asn Ile Val Ser Thr Arg Ile Tyr Glu
      115            120            125

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Lys Val  
130

<210> 97  
<211> 459  
<212> DNA  
<213> Homo sapiens

<400> 97  
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cggaacatgg cagggttagt gaaaccgaca gtaactatta gtgttgatgg gaaaatgatg 180  
accataagaa cagaaagttc tttccaggac actaagatct cttcaagct gggggaagaa 240  
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tcaatgattc acgtccaaaa atggcttggc aaagagacaa caatcaaaag aaaaattgtg 360  
gatgaaaaaa tggtagtgga atgtaaaatg aataatattg tcagcaccag aatctacgaa 420  
aagggtgtgaa gaaaggtcca cagcaatgaa aacttgttc 459

<210> 98  
<211> 133  
<212> PRT  
<213> Homo sapiens

<400> 98  
Met Met Val Glu Pro Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu  
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20 25 30  
Asn Met Ala Gly Leu Val Lys Pro Thr Val Thr Ile Ser Val Asp Gly  
35 40 45  
Lys Met Met Thr Ile Arg Thr Glu Ser Ser Phe Gln Asp Thr Lys Ile  
50 55 60  
Ser Phe Lys Leu Gly Glu Glu Phe Asp Glu Thr Thr Ala Asp Asn Arg  
65 70 75 80  
Lys Val Lys Ser Thr Ile Thr Leu Glu Asn Gly Ser Met Ile His Val  
85 90 95  
Gln Lys Trp Leu Gly Lys Glu Thr Thr Ile Lys Arg Lys Ile Val Asp  
100 105 110  
Glu Lys Met Val Val Glu Cys Lys Met Asn Asn Ile Val Ser Thr Arg

115

120

125

Ile Tyr Glu Lys Val  
130

&lt;210&gt; 99

&lt;211&gt; 1238

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 99

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&lt;210&gt; 100

&lt;211&gt; 411

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 100

Thr Cys Ser Pro Glu Thr Ser Phe Ser Leu Ser Lys Glu Ala Pro Arg  
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Glu His Leu Asp His Gln Ala Ala His Gln Pro Phe Pro Arg Pro Arg  
20 25 30

Phe Arg Gln Glu Thr Gly His Pro Ser Leu Gln Arg Asp Phe Pro Arg

35	40	45													
Ser Phe Leu Leu Asp Leu Pro Asn Phe Pro Asp Leu Ser Lys Ala Asp															
50	55	60													
Ile Asn Gly Gln Asn Pro Asn Ile Gln Val Thr Ile Glu Val Val Asp															
65	70	75													80
Gly Pro Asp Ser Glu Ala Asp Lys Asp Gln His Pro Glu Asn Lys Pro															
	85	90													95
Ser Trp Ser Val Pro Ser Pro Asp Trp Arg Ala Trp Trp Gln Arg Ser															
	100	105													110
Leu Ser Leu Ala Arg Ala Asn Ser Gly Asp Gln Asp Tyr Lys Tyr Asp															
	115	120													125
Ser Thr Ser Asp Asp Ser Asn Phe Leu Asn Pro Pro Arg Gly Trp Asp															
	130	135													140
His Thr Ala Pro Gly His Arg Thr Phe Glu Thr Lys Asp Gln Pro Glu															
145	150	155													160
Tyr Asp Ser Thr Asp Gly Glu Gly Asp Trp Ser Leu Trp Ser Val Cys															
	165	170													175
Ser Val Thr Cys Gly Asn Gly Asn Gln Lys Arg Thr Arg Ser Cys Gly															
	180	185													190
Tyr Ala Cys Thr Ala Thr Glu Ser Arg Thr Cys Asp Arg Pro Asn Cys															
	195	200													205
Pro Gly Ile Glu Asp Thr Phe Arg Thr Ala Ala Thr Glu Val Ser Leu															
	210	215													220
Leu Ala Gly Ser Glu Glu Phe Asn Ala Thr Lys Leu Phe Glu Val Asp															
225	230	235													240
Thr Asp Ser Cys Glu Arg Trp Met Ser Cys Lys Ser Glu Phe Leu Lys															
	245	250													255
Lys Tyr Met His Lys Val Met Asn Asp Leu Pro Ser Cys Pro Cys Ser															
	260	265													270
Tyr Pro Thr Glu Val Ala Tyr Ser Thr Ala Asp Ile Phe Asp Arg Ile															
	275	280													285
Lys Arg Lys Asp Phe Arg Trp Lys Asp Ala Ser Gly Pro Lys Glu Lys															

290	295	300
Leu Glu Ile Tyr Lys Pro Thr Ala Arg Tyr Cys Ile Arg Ser Met Leu		
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Ser Leu Glu Ser Thr Thr Leu Ala Ala Gln His Cys Cys Tyr Gly Asp		
325	330	335
Asn Met Gln Leu Ile Thr Arg Gly Lys Gly Ala Gly Thr Pro Asn Leu		
340	345	350
Ile Gly Thr Glu Phe Ser Ala Glu Leu His Tyr Lys Val Asp Val Leu		
355	360	365
Pro Trp Ile Ile Cys Lys Gly Asp Trp Ser Arg Tyr Asn Glu Ala Arg		
370	375	380
Pro Pro Asn Asn Gly Gln Glu Cys Thr Glu Ser Pro Ser Asp Glu Asp		
385	390	395 400
Tyr Ile Lys Gln Phe Gln Glu Ala Arg Glu Tyr		
405	410	

<210> 101

<211> 1463

<212> DNA

<213> Homo sapiens

<400> 101

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<210> 102

<211> 454

<212> PRT

<213> Homo sapiens

<400> 102

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 20 25 30

Asp Glu Val Ala Ala Phe Phe Val Ala Asp Leu Gly Ala Ile Val Arg  
 35 40 45

Lys His Phe Cys Phe Leu Lys Cys Leu Pro Arg Val Arg Pro Phe Tyr  
 50 55 60

Ala Val Lys Cys Asn Ser Ser Pro Gly Val Leu Lys Val Leu Ala Gln  
 65 70 75 80

Leu Gly Leu Gly Phe Ser Cys Ala Asn Lys Ala Glu Met Glu Leu Val  
 85 90 95

Gln His Ile Gly Ile Pro Ala Ser Lys Ile Ile Cys Ala Asn Pro Cys  
 100 105 110

Lys Gln Ile Ala Gln Ile Lys Tyr Ala Ala Lys His Gly Ile Gln Leu  
 115 120 125

Leu Ser Phe Asp Asn Glu Met Glu Leu Ala Lys Val Val Lys Ser His  
 130 135 140

Pro Ser Ala Lys Met Val Leu Cys Ile Ala Thr Asp Asp Ser His Ser  
 145 150 155 160

Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu Lys Ser Cys Arg  
 165 170 175

His	Leu	Leu	Glu	Asn	Ala	Lys	Lys	His	His	Val	Glu	Val	Val	Gly	Val		
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Ser	Phe	His	Ile	Gly	Ser	Gly	Cys	Pro	Asp	Pro	Gln	Ala	Tyr	Ala	Gln		
		195					200					205					
Ser	Ile	Ala	Asp	Ala	Arg	Leu	Val	Phe	Glu	Met	Gly	Thr	Glu	Leu	Gly		
	210					215					220						
His	Lys	Met	His	Val	Leu	Asp	Leu	Gly	Gly	Gly	Phe	Pro	Gly	Thr	Glu		
225					230					235						240	
Gly	Ala	Lys	Val	Arg	Phe	Glu	Glu	Ile	Ala	Ser	Val	Ile	Asn	Ser	Ala		
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Leu	Asp	Leu	Tyr	Phe	Pro	Glu	Gly	Cys	Gly	Val	Asp	Ile	Phe	Ala	Glu		
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Leu	Gly	Arg	Tyr	Tyr	Val	Thr	Ser	Ala	Phe	Thr	Val	Ala	Val	Ser	Ile		
	275						280					285					
Ile	Ala	Lys	Lys	Glu	Val	Leu	Leu	Asp	Gln	Pro	Gly	Arg	Glu	Glu	Glu		
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Asn	Gly	Ser	Thr	Ser	Lys	Thr	Ile	Val	Tyr	His	Leu	Asp	Glu	Gly	Val		
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Tyr	Gly	Ile	Phe	Asn	Ser	Val	Leu	Phe	Asp	Asn	Ile	Cys	Pro	Thr	Pro		
				325					330					335			
Ile	Leu	Gln	Lys	Lys	Pro	Ser	Thr	Glu	Gln	Pro	Leu	Tyr	Ser	Ser	Ser		
			340					345					350				
Leu	Trp	Gly	Pro	Ala	Val	Asp	Gly	Cys	Asp	Cys	Val	Ala	Glu	Gly	Leu		
	355						360					365					
Trp	Leu	Pro	Gln	Leu	His	Val	Gly	Asp	Trp	Leu	Val	Phe	Asp	Asn	Met		
	370					375					380						
Gly	Ala	Tyr	Thr	Val	Gly	Met	Gly	Ser	Pro	Phe	Trp	Gly	Thr	Gln	Ala		
385					390					395					400		
Cys	His	Ile	Thr	Tyr	Ala	Met	Ser	Arg	Val	Ala	Trp	Arg	Arg	Gln	Leu		
				405					410					415			
Met	Ala	Ala	Glu	Gln	Glu	Asp	Asp	Val	Glu	Gly	Val	Cys	Lys	Pro	Leu		
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Ser Cys Gly Trp Glu Ile Thr Asp Thr Leu Cys Val Gly Pro Val Phe  
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Thr Pro Ala Ser Ile Met  
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<210> 103  
<211> 1613  
<212> DNA  
<213> Homo sapiens

<400> 103  
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<210> 104  
<211> 402  
<212> PRT  
<213> Homo sapiens

<400> 104

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Phe	Ser	Thr	Arg	Asp	Leu	Leu	Lys	Glu	Leu	Thr	Leu	Gly	Ala	Ser	Gln	20	25	30	
Ala	Thr	Thr	Ala	Glu	Met	Glu	Leu	Val	Gln	His	Ile	Gly	Ile	Pro	Ala	35	40	45	
Ser	Lys	Ile	Ile	Cys	Ala	Asn	Pro	Cys	Lys	Gln	Ile	Ala	Gln	Ile	Lys	50	55	60	
Tyr	Ala	Ala	Lys	His	Gly	Ile	Gln	Leu	Leu	Ser	Phe	Asp	Asn	Glu	Met	65	70	75	80
Glu	Leu	Ala	Lys	Val	Val	Lys	Ser	His	Pro	Ser	Ala	Lys	Met	Val	Leu	85	90	95	
Cys	Ile	Ala	Thr	Asp	Asp	Ser	His	Ser	Leu	Ser	Cys	Leu	Ser	Leu	Lys	100	105	110	
Phe	Gly	Val	Ser	Leu	Lys	Ser	Cys	Arg	His	Leu	Leu	Glu	Asn	Ala	Lys	115	120	125	
Lys	His	His	Val	Glu	Val	Val	Gly	Val	Ser	Phe	His	Ile	Gly	Ser	Gly	130	135	140	
Cys	Pro	Asp	Pro	Gln	Ala	Tyr	Ala	Gln	Ser	Ile	Ala	Asp	Ala	Arg	Leu	145	150	155	160
Val	Phe	Glu	Met	Gly	Thr	Glu	Leu	Gly	His	Lys	Met	His	Val	Leu	Asp	165	170	175	
Leu	Gly	Gly	Gly	Phe	Pro	Gly	Thr	Glu	Gly	Ala	Lys	Val	Arg	Phe	Glu	180	185	190	
Glu	Ile	Ala	Ser	Val	Ile	Asn	Ser	Ala	Leu	Asp	Leu	Tyr	Phe	Pro	Glu	195	200	205	
Gly	Cys	Gly	Val	Asp	Ile	Phe	Ala	Glu	Leu	Gly	Arg	Tyr	Tyr	Val	Thr	210	215	220	
Ser	Ala	Phe	Thr	Val	Ala	Val	Ser	Ile	Ile	Ala	Lys	Lys	Glu	Val	Leu	225	230	235	240
Leu	Asp	Gln	Pro	Gly	Arg	Glu	Glu	Glu	Asn	Gly	Ser	Thr	Ser	Lys	Thr	245	250	255	

Ile Val Tyr His Leu Asp Glu Gly Val Tyr Gly Ile Phe Asn Ser Val  
260 265 270

Leu Phe Asp Asn Ile Cys Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser  
275 280 285

Thr Glu Gln Pro Leu Tyr Ser Ser Ser Leu Trp Gly Pro Ala Val Asp  
290 295 300

Gly Cys Asp Cys Val Ala Glu Gly Leu Trp Leu Pro Gln Leu His Val  
305 310 315 320

Gly Asp Trp Leu Val Phe Asp Asn Met Gly Ala Tyr Thr Val Gly Met  
325 330 335

Gly Ser Pro Phe Trp Gly Thr Gln Ala Cys His Ile Thr Tyr Ala Met  
340 345 350

Ser Arg Val Ala Trp Glu Ala Leu Arg Arg Gln Leu Met Ala Ala Glu  
355 360 365

Gln Glu Asp Asp Val Glu Gly Val Cys Lys Pro Leu Ser Cys Gly Trp  
370 375 380

Glu Ile Thr Asp Thr Leu Cys Val Gly Pro Val Phe Thr Pro Ala Ser  
385 390 395 400

Ile Met

<210> 105

<211> 679

<212> DNA

<213> Homo sapiens

<400> 105

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679

<210> 106

<211> 218

<212> PRT

<213> Homo sapiens

<400> 106

Met Ala Gly Tyr Leu Ser Glu Ser Asp Phe Val Met Val Glu Glu Gly  
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Phe Ser Thr Arg Asp Leu Leu Lys Glu Leu Thr Leu Gly Ala Ser Gln  
20 25 30

Ala Thr Thr Asp Glu Val Ala Ala Phe Phe Val Ala Asp Leu Gly Ala  
35 40 45

Ile Val Arg Lys His Phe Cys Phe Leu Lys Cys Leu Pro Arg Val Arg  
50 55 60

Pro Phe Tyr Ala Val Lys Cys Asn Ser Ser Pro Gly Val Leu Lys Val  
65 70 75 80

Leu Ala Gln Leu Gly Leu Gly Phe Ser Cys Ala Asn Ile Cys Pro Thr  
85 90 95

Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu Gln Pro Leu Tyr Ser Ser  
100 105 110

Ser Leu Trp Gly Pro Ala Val Asp Gly Cys Asp Cys Val Ala Glu Gly  
115 120 125

Leu Trp Leu Pro Gln Leu His Val Gly Asp Trp Leu Val Phe Asp Asn  
130 135 140

Met Gly Ala Tyr Thr Val Gly Met Gly Ser Pro Phe Trp Gly Thr Gln  
145 150 155 160

Ala Cys His Ile Thr Tyr Ala Met Ser Arg Val Ala Trp Glu Ala Leu  
165 170 175

Arg Arg Gln Leu Met Ala Ala Glu Gln Glu Asp Asp Val Glu Gly Val  
180 185 190

Cys Lys Pro Leu Ser Cys Gly Trp Glu Ile Thr Asp Thr Leu Cys Val  
195 200 205

Gly Pro Val Phe Thr Pro Ala Ser Ile Met  
 210 215

<210> 107  
 <211> 2972  
 <212> DNA  
 <213> Homo sapiens

<400> 107  
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<210> 108

<211> 760

<212> PRT

<213> Homo sapiens

<400> 108

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Ala Cys Thr Thr Asp Ser Trp Ala Gln Gly Ser Val Pro Val Leu His
          35             40             45

Ala Ser Thr Ser Glu Gly Leu Glu Asn Phe Gln Gly Glu Val His Ser
          50             55             60

Ser Gly Ala Ser Pro Asp Ser Ser Ala Ile Ala Pro Ala Leu Pro Phe
          65             70             75             80

Pro Thr Ser His Cys Pro Ser Ala Phe Pro Gln Asp Pro Gly Gly Val
          85             90             95

Asp Arg Ile Pro Leu Gly Arg Ser Trp Met Gly Arg Gly Ser Gln Glu
          100            105            110

Gln Met Glu Ser Trp Glu Pro Ser Pro Gln Leu Arg Val Thr Ser Ala
          115            120            125

Pro Pro Pro Thr Ser Glu Leu Phe Gln Glu Ala Gly Pro Gly Gly Pro
          130            135            140

Val Glu Glu Ala Asp Gly Gln Ser Arg Gly Leu Ser Ser Ala Gly Ser

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145		150		155		160
Leu Ser Ala Ser Phe Gln Leu Ser Val Glu Glu Ala Pro Ala Asp Asp						
	165		170		175	
Ala Asp Pro Ser Leu Asp Pro Tyr Leu Val Ala Ser Pro Gln Ala Ser						
	180		185		190	
Thr Gly Arg Gly His Pro Leu Gly Phe His Leu Ser Leu Glu Asp Leu						
	195		200		205	
Tyr Cys Cys Met Pro Gln Leu Asp Ala Ala Gly Asp Arg Leu Glu Leu						
	210		215		220	
Arg Ser Glu Gly Val Pro Cys Ile Ala Ser Gly Val Leu Val Ser Tyr						
225		230		235		240
Pro Ser Val Gly Gly Ala Thr Arg Pro Ser Ala Ser Cys Gln Gln Gln						
	245		250		255	
Arg Ala Gly His Ser Asp Val Arg Leu Ser Ala His His His Arg Met						
	260		265		270	
Arg Arg Lys Ala Ala Val Lys Arg Leu Asp Pro Ala Arg Leu Pro Cys						
	275		280		285	
His Trp Val Arg Pro Leu Ala Glu Val Leu Val Pro Asp Ser Gln Thr						
	290		295		300	
Arg Pro Leu Glu Ala Tyr Arg Gly Arg Gln Arg Gly Glu Lys Thr Lys						
305		310		315		320
Ala Arg Ala Glu Pro Gln Ala Leu Gly Pro Gly Thr Arg Val Ser Pro						
	325		330		335	
Ala Ala Phe Phe Pro Leu Arg Pro Gly Ile Pro Phe Arg Asp Leu Asp						
	340		345		350	
Ser Gly Pro Ala Leu Leu Phe Pro Thr Leu Asn Leu Gly Leu Ser Ser						
	355		360		365	
Pro Ser Leu Glu Ser Lys Leu Pro Leu Pro Asn Ser Arg Ile Arg Phe						
	370		375		380	
Leu Thr Thr His Pro Val Leu Pro Asp Val Ala Arg Ser Arg Ser Pro						
385		390		395		400
Lys Leu Trp Pro Ser Val Arg Trp Pro Ser Gly Trp Glu Gly Lys Ala						





660	665	670
His Leu Pro Gln Gly Ala Trp Ile Ser Pro Leu Ser Leu Thr Met Leu		
675	680	685
Gly Pro Phe Cys Ser Gln Ile Tyr Ser Lys Asp Leu Lys Gln Gly Val		
690	695	700
Leu Pro Val Leu Tyr Leu Ser Leu Ala Glu Glu Pro Gly Gly Ile Ser		
705	710	715
Gly Lys Tyr Phe Ser Ser Ser Cys Val Ile Thr Leu Pro Val Lys Ala		
725	730	735
Ser Arg Asp Pro His Val Ala Gln Ser Leu Trp Asn Ala Ser Val Arg		
740	745	750
Leu Thr Ser Leu Val Lys Met Asp		
755	760	

<210> 109  
 <211> 2077  
 <212> DNA  
 <213> Homo sapiens

<400> 109

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tccccaaagc ctggcaaagc tcagcccctg agaaggccct ctctgttggc ccagtgcac 720
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<210> 110

<211> 659

<212> PRT

<213> Homo sapiens

<400> 110

Met	Glu	Arg	Trp	Arg	Asp	Arg	Leu	Ala	Leu	Val	Thr	Gly	Ala	Ser	Gly
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Gly	Ile	Gly	Ala	Ala	Val	Ala	Arg	Ala	Leu	Val	Gln	Gln	Gly	Leu	Lys
			20					25					30		

Val	Val	Gly	Cys	Ala	Arg	Thr	Val	Gly	Asn	Ile	Glu	Glu	Leu	Ala	Ala
		35						40				45			

Glu	Cys	Lys	Ser	Ala	Gly	Tyr	Pro	Gly	Thr	Leu	Ile	Pro	Tyr	Arg	Cys
	50					55					60				

Asp	Leu	Ser	Asn	Glu	Glu	Asp	Ile	Leu	Ser	Met	Phe	Ser	Ala	Ile	Arg
65					70					75					80

Ser	Gln	His	Ser	Gly	Val	Asp	Ile	Cys	Ile	Asn	Asn	Ala	Gly	Leu	Ala
				85					90					95	

Arg	Pro	Asp	Thr	Leu	Leu	Ser	Gly	Ser	Thr	Ser	Gly	Trp	Lys	Asp	Met
			100					105					110		

Phe	Asn	Val	Asn	Val	Leu	Ala	Leu	Ser	Ile	Cys	Thr	Arg	Glu	Ala	Tyr
		115					120					125			

Gln	Ser	Met	Lys	Glu	Arg	Asn	Val	Asp	Asp	Gly	His	Ile	Ile	Asn	Ile
		130					135					140			

Asn	Ser	Met	Ser	Gly	His	Arg	Val	Leu	Pro	Leu	Ser	Val	Thr	His	Phe	145	150	155	160
Tyr	Ser	Ala	Thr	Lys	Tyr	Ala	Val	Thr	Ala	Leu	Thr	Glu	Gly	Leu	Arg	165	170	175	
Gln	Glu	Leu	Arg	Glu	Ala	Gln	Thr	His	Ile	Arg	Ala	Thr	Trp	Gln	Leu	180	185	190	
Arg	Arg	Glu	Glu	Ala	Ala	Ala	Gly	Tyr	Gln	Ala	Ala	Ile	Thr	Val	Lys	195	200	205	
Leu	Gly	Phe	Cys	Gly	Leu	His	Pro	Leu	Pro	Ser	Thr	Ser	Pro	Arg	Pro	210	215	220	
Gly	Lys	Ala	Gln	Pro	Leu	Arg	Arg	Pro	Ser	Leu	Leu	Ala	Gln	Cys	Ile	225	230	235	240
Ser	Pro	Gly	Val	Val	Glu	Thr	Gln	Phe	Ala	Phe	Lys	Leu	His	Asp	Lys	245	250	255	
Asp	Pro	Glu	Lys	Ala	Ala	Ala	Thr	Tyr	Glu	Gln	Met	Lys	Cys	Leu	Lys	260	265	270	
Pro	Glu	Asp	Val	Ala	Glu	Ala	Val	Ile	Tyr	Val	Leu	Ser	Thr	Pro	Ala	275	280	285	
His	Ile	Gln	Ile	Gly	Asp	Ile	Gln	Met	Arg	Pro	Thr	Glu	Gln	Arg	Ala	290	295	300	
Arg	Arg	Arg	Arg	Leu	Ser	Ser	Thr	Leu	His	Leu	Gly	Val	Gly	Ser	Leu	305	310	315	320
Gly	Ala	Asn	Cys	Gly	Ala	Gly	Tyr	Arg	Ser	Arg	Gly	Arg	Ser	Lys	Gly	325	330	335	
His	Arg	Val	Pro	Gly	Gly	Ser	Cys	Ala	Met	Ala	Leu	Leu	Ser	Thr	Val	340	345	350	
Arg	Gly	Ala	Thr	Trp	Gly	Arg	Leu	Val	Thr	Arg	His	Phe	Ser	His	Ala	355	360	365	
Ala	Arg	His	Gly	Glu	Arg	Pro	Gly	Gly	Glu	Glu	Leu	Ser	Arg	Leu	Leu	370	375	380	
Leu	Asp	Asp	Leu	Val	Pro	Thr	Ser	Arg	Leu	Glu	Leu	Leu	Phe	Gly	Met	385	390	395	400

Thr Pro Cys Leu Leu Ala Leu Gln Ala Ala Arg Arg Ser Val Ala Arg  
 405 410 415  
 Leu Leu Leu Gln Ala Gly Lys Ala Gly Leu Gln Gly Lys Arg Ala Glu  
 420 425 430  
 Leu Leu Arg Met Ala Glu Ala Arg Asp Ile Pro Val Leu Arg Pro Arg  
 435 440 445  
 Arg Gln Lys Leu Asp Thr Met Cys Arg Tyr Gln Val His Gln Gly Val  
 450 455 460  
 Cys Met Glu Val Ser Pro Leu Arg Pro Arg Pro Trp Arg Glu Ala Gly  
 465 470 475 480  
 Glu Ala Ser Pro Gly Asp Asp Pro Gln Gln Leu Trp Leu Val Leu Asp  
 485 490 495  
 Gly Ile Gln Asp Pro Arg Asn Phe Gly Ala Val Leu Arg Ser Ala His  
 500 505 510  
 Phe Leu Gly Val Asp Lys Thr Lys Ala Gln Gln Gly Trp Leu Val Ala  
 515 520 525  
 Gly Thr Val Gly Cys Pro Ser Thr Glu Asp Pro Gln Ser Ser Glu Ile  
 530 535 540  
 Pro Ile Met Ser Cys Leu Glu Phe Leu Trp Glu Arg Pro Thr Leu Leu  
 545 550 555 560  
 Val Leu Gly Asn Glu Gly Ser Gly Leu Ser Gln Glu Val Gln Ala Ser  
 565 570 575  
 Cys Gln Leu Leu Leu Thr Ile Leu Pro Arg Arg Gln Leu Pro Pro Gly  
 580 585 590  
 Leu Glu Ser Leu Asn Val Ser Val Ala Ala Gly Ile Leu Leu His Ser  
 595 600 605  
 Ile Cys Ser Gln Arg Lys Gly Phe Pro Thr Glu Gly Glu Arg Arg Gln  
 610 615 620  
 Leu Leu Gln Asp Pro Gln Glu Pro Ser Ala Arg Ser Glu Gly Leu Ser  
 625 630 635 640  
 Met Ala Gln His Pro Gly Leu Ser Ser Gly Pro Glu Lys Glu Arg Gln  
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Asn Glu Gly

<210> 111

<211> 3010

<212> DNA

<213> Homo sapiens

<400> 111

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<210> 112

<211> 796

<212> PRT

<213> Homo sapiens

<400> 112

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Met Glu Ala Gly Gly Glu Arg Phe Leu Arg Gln Arg Gln Val Leu Leu
  1              5              10              15

```

```

Leu Phe Val Phe Leu Gly Gly Ser Leu Ala Gly Ser Glu Ser Arg Arg
      20              25              30

```

```

Tyr Ser Val Ala Glu Glu Lys Glu Lys Gly Phe Leu Ile Ala Asn Leu
      35              40              45

```

```

Ala Lys Asp Leu Gly Leu Arg Val Glu Glu Leu Ala Ala Arg Gly Ala
      50              55              60

```

```

Gln Val Val Ser Lys Gly Asn Lys Gln His Phe Gln Leu Ser His Gln
      65              70              75              80

```

```

Thr Gly Asp Leu Leu Leu Asn Glu Lys Leu Asp Arg Glu Glu Leu Cys
      85              90              95

```

```

Gly Pro Thr Glu Pro Cys Ile Leu His Phe Gln Ile Leu Leu Gln Asn
      100             105             110

```

```

Pro Leu Gln Phe Val Thr Asn Glu Leu Arg Ile Ile Asp Val Asn Asp
      115             120             125

```

```

His Ser Pro Val Phe Phe Glu Asn Glu Met His Leu Lys Ile Leu Glu
      130             135             140

```

Ser	Thr	Leu	Pro	Gly	Thr	Val	Ile	Pro	Leu	Gly	Asn	Ala	Glu	Asp	Leu	145	150	155	160
Asp	Val	Gly	Arg	Asn	Ser	Leu	Gln	Asn	Tyr	Thr	Ile	Thr	Pro	Asn	Ser	165	170	175	
His	Phe	His	Val	Pro	Thr	Arg	Ser	Arg	Arg	Asp	Gly	Arg	Lys	Tyr	Pro	180	185	190	
Glu	Leu	Val	Leu	Asn	Arg	Ala	Leu	Asp	Arg	Glu	Glu	Gln	Pro	Glu	Ile	195	200	205	
Arg	Leu	Thr	Leu	Thr	Ala	Leu	Asp	Gly	Gly	Ser	Pro	Pro	Arg	Ser	Gly	210	215	220	
Thr	Ala	Leu	Val	Arg	Ile	Glu	Val	Val	Asp	Ile	Asn	Asp	Asn	Val	Pro	225	230	235	240
Glu	Phe	Ala	Lys	Leu	Leu	Tyr	Glu	Val	Gln	Ile	Pro	Glu	Asp	Ser	Pro	245	250	255	
Val	Gly	Ser	Gln	Val	Ala	Ile	Val	Ser	Ala	Arg	Asp	Leu	Asp	Ile	Gly	260	265	270	
Thr	Asn	Gly	Glu	Ile	Ser	Tyr	Ala	Phe	Ser	Gln	Ala	Ser	Glu	Asp	Ile	275	280	285	
Arg	Lys	Thr	Phe	Arg	Leu	Ser	Ala	Lys	Ser	Gly	Glu	Leu	Leu	Leu	Arg	290	295	300	
Gln	Lys	Leu	Asp	Phe	Glu	Ser	Ile	Gln	Thr	Tyr	Thr	Val	Asn	Ile	Gln	305	310	315	320
Ala	Thr	Asp	Gly	Gly	Gly	Leu	Ser	Gly	Lys	Ser	Thr	Val	Ile	Val	Gln	325	330	335	
Val	Val	Asp	Val	Asn	Asp	Asn	Pro	Pro	Glu	Leu	Thr	Leu	Ser	Ser	Val	340	345	350	
Asn	Ser	Pro	Ile	Pro	Glu	Asn	Ser	Gly	Glu	Thr	Val	Leu	Ala	Val	Phe	355	360	365	
Ser	Val	Ser	Asp	Leu	Asp	Ser	Gly	Asp	Asn	Gly	Arg	Val	Met	Cys	Ser	370	375	380	
Ile	Glu	Asn	Asn	Leu	Pro	Phe	Phe	Leu	Lys	Pro	Ser	Val	Glu	Asn	Phe	385	390	395	400

Tyr Thr Leu Val Ser Glu Gly Ala Leu Asp Arg Glu Thr Arg Ser Glu  
 405 410 415  
 Tyr Asn Ile Thr Ile Thr Ile Thr Asp Leu Gly Thr Pro Arg Leu Lys  
 420 425 430  
 Thr Lys Tyr Asn Ile Thr Val Leu Val Ser Asp Val Asn Asp Asn Ala  
 435 440 445  
 Pro Ala Phe Thr Gln Ile Ser Tyr Thr Leu Phe Val Arg Glu Asn Asn  
 450 455 460  
 Ser Pro Ala Leu His Ile Gly Ser Val Ser Ala Thr Asp Arg Asp Ser  
 465 470 475 480  
 Gly Thr Asn Ala Gln Val Thr Tyr Ser Leu Leu Pro Pro Gln Asp Pro  
 485 490 495  
 His Leu Pro Leu Ser Ser Leu Val Ser Ile Asn Ala Asp Asn Gly His  
 500 505 510  
 Leu Phe Ala Leu Arg Ser Leu Asp Tyr Glu Ala Leu Gln Ala Phe Glu  
 515 520 525  
 Phe Arg Val Gly Ala Thr Asp Arg Gly Ser Pro Ala Leu Ser Ser Glu  
 530 535 540  
 Ala Leu Val Arg Val Leu Val Leu Asp Ala Asn Asp Asn Ser Pro Phe  
 545 550 555 560  
 Val Leu Tyr Pro Leu Gln Asn Gly Ser Ala Pro Cys Thr Glu Leu Val  
 565 570 575  
 Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val Ala Val  
 580 585 590  
 Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu Leu Lys  
 595 600 605  
 Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly Glu Val  
 610 615 620  
 Arg Thr Ala Arg Leu Leu Arg Glu Arg Asp Ala Ala Lys Gln Arg Leu  
 625 630 635 640  
 Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala Thr Ala  
 645 650 655



Thr Leu His Val Leu Leu Val Asp Gly Phe Ser Gln Pro Tyr Leu Leu  
660 665 670

Leu Pro Glu Ala Ala Pro Ala Gln Ala Gln Ala Asp Leu Leu Thr Val  
675 680 685

Tyr Leu Val Val Ala Leu Ala Ser Val Ser Ser Leu Phe Leu Phe Ser  
690 695 700

Val Leu Leu Phe Val Ala Val Arg Leu Cys Arg Arg Ser Arg Ala Ala  
705 710 715 720

Ser Val Gly Arg Cys Ser Val Pro Glu Gly Pro Phe Pro Gly Gln Met  
725 730 735

Val Asp Val Ser Gly Thr Gly Thr Leu Ser Gln Ser Tyr Gln Tyr Glu  
740 745 750

Val Cys Leu Thr Gly Gly Ser Gly Thr Asn Glu Phe Lys Phe Leu Lys  
755 760 765

Pro Ile Ile Pro Asn Phe Val Ala Gln Gly Ala Glu Arg Val Ser Glu  
770 775 780

Ala Asn Pro Ser Phe Arg Lys Ser Phe Glu Phe Thr  
785 790 795

<210> 113

<211> 261

<212> PRT

<213> Homo sapiens

<400> 113

Met Ile Tyr Lys Cys Pro Met Cys Arg Glu Phe Phe Ser Glu Arg Ala  
1 5 10 15

Asp Leu Phe Met His Gln Lys Val His Thr Ala Glu Lys Pro His Lys  
20 25 30

Cys Asp Lys Cys Asp Lys Gly Phe Phe His Ile Ser Glu Leu His Ile  
35 40 45

His Trp Arg Asp His Thr Gly Glu Lys Val Tyr Lys Cys Asp Asp Cys  
50 55 60

Gly Lys Asp Phe Ser Thr Thr Thr Lys Leu Asn Arg His Lys Lys Ile

65		70		75		80
His Thr Val Glu Lys Pro Tyr Lys Cys Tyr Glu Cys Gly Lys Ala Phe						
	85		90		95	
Asn Trp Ser Pro His Leu Gln Ile His Met Arg Val His Thr Gly Glu						
	100		105		110	
Lys Pro Tyr Val Cys Ser Glu Cys Gly Arg Gly Phe Ser Asn Ser Ser						
	115		120		125	
Asn Leu Cys Met His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys						
	130		135		140	
Cys Glu Glu Cys Gly Lys Ala Phe Arg His Thr Ser Ser Leu Cys Met						
	145		150		155	160
His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Tyr Glu Cys						
	165		170		175	
Gly Lys Ala Phe Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val						
	180		185		190	
His Thr Gly Glu Lys Pro Tyr Arg Cys Cys Gly Cys Gly Lys Ala Phe						
	195		200		205	
Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val His Thr Gly Glu						
	210		215		220	
Lys Pro Phe Lys Cys Asp Glu Cys Gly Lys Ala Phe Ser Gln Ser Thr						
	225		230		235	240
Ser Leu Cys Ile His Gln Arg Val His Thr Lys Glu Arg Asn His Leu						
	245		250		255	
Lys Ile Ser Val Ile						
	260					

<210> 114

<211> 184

<212> PRT

<213> Homo sapiens

<400> 114

Val His Thr Ala Glu Lys Pro His Lys Cys Asp Lys Cys Asp Lys Gly
1 5 10 15

Phe	Phe	His	Ile	Ser	Glu	Leu	His	Ile	His	Trp	Arg	Asp	His	Thr	Gly	
			20					25					30			
Glu	Lys	Val	Tyr	Lys	Cys	Asp	Asp	Cys	Gly	Lys	Asp	Phe	Ser	Thr	Thr	
		35					40					45				
Thr	Lys	Leu	Asn	Arg	His	Lys	Lys	Ile	His	Thr	Val	Glu	Lys	Pro	Tyr	
		50					55				60					
Lys	Cys	Tyr	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Trp	Ser	Ser	His	Leu	Gln	
	65				70					75					80	
Ile	His	Met	Arg	Val	His	Thr	Gly	Glu	Glu	Pro	Tyr	Val	Cys	Ser	Glu	
			85						90					95		
Cys	Gly	Arg	Gly	Phe	Ser	Asn	Ser	Ser	Asn	Leu	Cys	Met	His	Gln	Arg	
			100					105					110			
Val	His	Thr	Gly	Glu	Lys	Pro	Phe	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	
		115					120					125				
Phe	Arg	His	Thr	Ser	Ser	Leu	Cys	Met	His	Gln	Arg	Val	His	Thr	Gly	
	130					135					140					
Glu	Lys	Pro	Tyr	Lys	Cys	Tyr	Glu	Cys	Gly	Lys	Ala	Phe	Ser	Gln	Arg	
145					150				155						160	
Ser	Ser	Leu	Cys	Ile	His	Gln	Arg	Val	His	Thr	Gly	Glu	Lys	Pro	Tyr	
			165					170						175		
Arg	Cys	Cys	Gly	Cys	Gly	Lys	Ala									
			180													

<210> 115

<211> 183

<212> PRT

<213> Homo sapiens

<400> 115

Val	His	Thr	Ala	Glu	Lys	Pro	His	Lys	Cys	Asp	Lys	Cys	Asp	Lys	Gly	
1				5					10					15		

Phe	Phe	His	Ile	Ser	Glu	Leu	His	Ile	His	Trp	Arg	Asp	His	Thr	Gly	
			20					25					30			

Glu	Lys	Val	Tyr	Lys	Cys	Asp	Asp	Cys	Gly	Lys	Asp	Phe	Ser	Thr	Thr	
		35					40					45				

Thr Lys Leu Asn Arg His Lys Lys Ile His Thr Val Glu Lys Pro Tyr  
 50 55 60  
 Lys Cys Tyr Glu Cys Gly Lys Ala Phe Asn Trp Ser Ser His Leu Gln  
 65 70 75 80  
 Ile His Met Arg Val His Thr Gly Glu Glu Pro Tyr Val Cys Ser Glu  
 85 90 95  
 Cys Gly Arg Gly Phe Ser Asn Ser Ser Asn Leu Cys Met His Gln Arg  
 100 105 110  
 Val His Thr Gly Glu Lys Pro Phe Lys Cys Glu Glu Cys Gly Lys Ala  
 115 120 125  
 Phe Arg His Thr Ser Ser Leu Cys Met His Gln Arg Val His Thr Gly  
 130 135 140  
 Glu Lys Pro Tyr Lys Cys Tyr Glu Cys Gly Lys Ala Phe Ser Gln Arg  
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 Ser Ser Leu Cys Ile His Gln Arg Val His Thr Gly Glu Lys Pro Tyr  
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 Arg Cys Cys Gly Cys Gly Lys  
 180

<210> 116  
 <211> 1147  
 <212> PRT  
 <213> Homo sapiens

<400> 116  
 Met Pro Val Lys Lys Gly Cys Gln Gly Pro Pro Lys Gly Met Leu Arg  
 1 5 10 15  
 Pro Cys Val Pro Gly Phe Ser Val Cys Ala Ser Gln Ser Leu Ile Ser  
 20 25 30  
 Pro Ala Glu Val Pro Gly Leu Arg Trp Ala Cys Leu Gln Glu Gln Leu  
 35 40 45  
 Val Leu Gly Ser Gly Asn Ser Val Glu Leu Ser Cys His Pro Pro Gly  
 50 55 60  
 Arg Gly Pro Met Glu Leu Thr Val Gly Val Lys Gly Ser Ala Gly Leu

65						70											75												80
Pro	Gly	Thr	Ser	Ser	Trp	Gly	Ser	Thr	Ile	Val	Ala	Pro	Pro	Gly	Ser														
				85					90					95															
Gly	Ile	Pro	Pro	Leu	Pro	Pro	Arg	Arg	Arg	His	Ser	Thr	Arg	Ser	Leu														
			100					105					110																
Ala	Cys	Cys	Asn	Ser	Ile	His	Ser	Ser	Gly	Ala	Ala	Ser	Thr	Val	Gln														
		115					120					125																	
Ala	Gly	Gly	Arg	Gly	Gly	Gln	Gly	Gln	Arg	Ala	Ala	Phe	Pro	Gly	Gly														
	130					135					140																		
Arg	Thr	Leu	Pro	Ser	Pro	Val	Thr	Arg	Lys	Thr	Val	Thr	Val	His	Pro														
145					150				155					160															
Glu	Ser	His	Cys	Gln	Gln	Leu	His	Val	Asn	Ser	Ser	Pro	Lys	Asp	Thr														
				165					170					175															
Arg	Glu	Thr	Gln	Ala	Ser	Gly	Pro	Met	Gly	Thr	Leu	Gly	Val	Arg	Ala														
			180					185					190																
Leu	Ala	Arg	Gln	Thr	Gly	Ala	Val	Tyr	Lys	Ser	Arg	Gly	Pro	Pro	Gln														
	195						200					205																	
Gln	Val	Asp	Arg	Lys	Glu	Gln	Ile	Lys	Gly	Lys	Pro	Tyr	Glu	Thr	His														
	210					215					220																		
Leu	Gln	Arg	Asn	Gln	Pro	Ile	Gln	Glu	Lys	Thr	Arg	Phe	Arg	Ala	Pro														
225					230				235					240															
Leu	Ala	His	Pro	Arg	Gly	Arg	Pro	Cys	Arg	Pro	Val	Leu	Ala	Gln	Leu														
				245				250					255																
Lys	His	Pro	Pro	Pro	Tyr	Pro	Ser	Leu	Leu	Lys	Gly	Ala	Leu	Cys	Thr														
		260					265					270																	
Gly	Ala	Glu	Arg	Phe	Leu	Ser	Lys	Ala	Leu	Trp	Leu	Ser	Leu	Ser	Ser														
	275						280					285																	
Pro	Ser	Thr	Leu	His	Pro	Thr	Leu	Ser	Cys	Ser	Lys	Gly	Pro	Cys	Leu														
	290					295					300																		
Pro	Glu	Gln	Asn	Thr	Pro	Ser	Pro	Arg	Leu	Tyr	Gly	Ser	Arg	Ala	Gln														
305					310				315					320															
Leu	Arg	Pro	Lys	Val	Val	Lys	Gly	Pro	Phe	Arg	Ser	Pro	Lys	Cys	Ala														

325						330						335				
Gly	Gln	Leu	Thr	Ser	His	Gly	Lys	Ser	Leu	Val	Pro	Cys	Gly	His	Arg	
			340						345			350				
Glu	Ala	Met	Ile	Ala	Ala	Cys	Pro	His	Gly	Lys	Ala	Phe	Trp	Ser	Leu	
			355						360			365				
His	Val	Arg	Val	Gln	Leu	Trp	Gln	Gln	Arg	Thr	Phe	Pro	Val	Leu	Glu	
			370						375			380				
Ile	Leu	Ser	Val	Trp	Gln	Gly	Leu	Gly	Thr	Pro	Thr	Gln	Pro	Pro	Ser	
385						390						395			400	
Ala	Ala	Ser	Cys	Gln	Leu	Trp	Glu	Asp	Val	Asp	Trp	Cys	Leu	Val	His	
			405						410			415				
Leu	Ser	Ser	Cys	Gly	Cys	Ser	Arg	Ser	Val	Asp	Lys	Ala	Gln	Val	Ser	
			420						425			430				
Ser	Lys	Ala	Thr	Thr	Glu	Asn	Ala	Gln	Asp	Val	Ile	Arg	Ala	Leu	Lys	
			435						440			445				
Met	Pro	Gly	Arg	Val	Glu	Gly	Lys	Met	Gln	Lys	Leu	Gln	Glu	Gly	Lys	
450						455						460				
Val	Asn	Leu	Glu	Lys	Asp	Leu	Glu	Lys	Glu	Ser	Asn	Arg	Asp	Ala	Val	
465						470						475			480	
Thr	Ala	Leu	Arg	Thr	Val	Asp	Asp	Leu	Val	Ile	Ile	Lys	Pro	Met	His	
			485						490			495				
Leu	Ser	Gly	His	Ser	Gln	Asp	Ile	His	Leu	His	Leu	Cys	Ser	Ser	Gln	
			500						505			510				
Glu	Glu	Ala	Ile	Arg	Ala	Ala	Gln	Trp	Leu	Val	Gln	Glu	Ala	Leu	Pro	
515						520						525				
Leu	Val	Pro	Trp	Gly	Lys	Asp	Leu	Gln	Trp	Gln	His	Gly	Thr	Tyr	Asn	
530						535						540				
Ala	Leu	Ser	Ala	Asp	Asp	Ala	Val	Gln	Ser	Pro	Pro	Asp	Cys	Ser	Glu	
545						550						555			560	
Asp	Ala	Thr	Asn	Ser	Cys	Leu	Thr	Ile	Thr	Arg	Val	Thr	Glu	Cys	Ile	
			565						570			575				
Arg	Glu	Ser	Leu	Cys	Phe	Lys	Gln	Cys	Leu	Thr	Gly	Gln	Phe	Leu	Pro	

580	585	590
Glu Gln Val His Phe Thr Leu Phe Ser Trp Ser Gln Ile Lys Asn Ser		
595	600	605
Ala His Gly Thr Phe Cys Lys Tyr Gly Leu Leu Ala Phe Ser Asp Val		
610	615	620
Val Ile Glu Phe Ser Pro Glu Glu Trp Ala Cys Leu Asp Pro Ala Gln		
625	630	635
Arg Asn Leu Tyr Arg Asp Val Met Phe Glu Asn Tyr Arg Asn Leu Val		
	645	650
Ser Leu Asp Leu Leu Pro Glu Gln Asp Met Lys Asp Leu Cys Gln Lys		
	660	665
Val Thr Leu Thr Arg His Arg Ser Trp Gly Leu Asp Asn Leu His Leu		
	675	680
Val Lys Asp Trp Arg Thr Val Asn Glu Gly Lys Gly Gln Lys Glu Tyr		
	690	700
Cys Asn Arg Leu Thr Gln Cys Ser Ser Thr Lys Ser Lys Ile Phe Gln		
705	710	715
Cys Ile Glu Cys Gly Arg Asn Phe Ser Trp Arg Ser Ile Leu Thr Glu		
	725	730
His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys		
	740	745
Gly Lys Val Phe Asn Arg Cys Ser Asn Leu Thr Lys His Lys Arg Ile		
	755	760
His Thr Gly Glu Lys Pro Tyr Lys Cys Asp Glu Cys Gly Lys Val Phe		
	770	775
Asn Trp Trp Ser Gln Leu Thr Asn His Lys Lys Ile His Thr Gly Glu		
785	790	795
Lys Pro Tyr Lys Cys Asp Glu Cys Asp Lys Val Phe Asn Trp Trp Ser		
	805	810
Gln Leu Thr Ser His Lys Lys Ile His Ser Gly Glu Lys Pro Tyr Pro		
	820	825
Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Phe Ser Asn Leu Thr Gln		

835		840		845
His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys				
850		855		860
Cys Lys Ala Phe Asn Lys Phe Ser Asn Leu Thr Gln His Lys Arg Ile				
865		870		875
				880
His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Asn Val Phe				
	885		890	895
Asn Glu Cys Ser His Leu Thr Arg His Arg Arg Ile His Thr Gly Glu				
	900		905	910
Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Phe Ala				
	915		920	925
Ser Leu Thr Arg His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Gln				
	930		935	940
Cys Glu Glu Cys Gly Lys Thr Phe Asn Arg Cys Ser His Leu Ser Ser				
945		950		955
				960
His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys				
	965		970	975
Gly Arg Thr Phe Thr Gln Phe Ser Asn Leu Thr Gln His Lys Arg Ile				
	980		985	990
His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe				
	995		1000	1005
Asn Lys Phe Ser Ser Leu Thr Gln His Arg Arg Ile His Thr Gly Val				
1010		1015		1020
Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Val Phe Lys Gln Cys Ser				
1025		1030		1035
				1040
His Leu Thr Ser His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys				
	1045		1050	1055
Cys Lys Glu Cys Gly Lys Ala Phe Tyr Gln Ser Ser Ile Leu Ser Lys				
	1060		1065	1070
His Lys Arg Ile His Thr Glu Glu Lys Pro Tyr Lys Cys Glu Glu Cys				
	1075		1080	1085
Gly Lys Ala Phe Asn Gln Phe Ser Ser Leu Thr Arg His Lys Arg Ile				



1090	1095	1100
His Thr Gly Glu Lys Arg Tyr Lys Cys Lys Glu Cys Gly Lys Gly Phe		
1105	1110	1115 1120
Tyr Gln Ser Ser Ile His Ser Lys Tyr Lys Arg Ile Tyr Thr Gly Glu		
	1125 1130	1135
Glu Pro Asp Lys Cys Lys Lys Cys Gly Ser Leu		
1140	1145	

<210> 117  
 <211> 606  
 <212> PRT  
 <213> Homo sapiens

<400> 117
Met Ala Val Thr Phe Glu Asp Val Thr Ile Ile Phe Thr Trp Glu Glu
1 5 10 15
Trp Lys Phe Leu Asp Ser Ser Gln Lys Arg Leu Tyr Arg Glu Val Met
20 25 30
Trp Glu Asn Tyr Thr Asn Val Met Ser Val Glu Asn Trp Asn Glu Ser
35 40 45
Tyr Lys Ser Gln Glu Glu Lys Phe Arg Tyr Leu Glu Tyr Glu Asn Phe
50 55 60
Ser Tyr Trp Gln Gly Trp Trp Asn Ala Gly Ala Gln Met Tyr Glu Asn
65 70 75 80
Gln Asn Tyr Gly Glu Thr Val Gln Gly Thr Asp Ser Lys Asp Leu Thr
85 90 95
Gln Gln Asp Arg Ser Gln Cys Gln Glu Trp Leu Ile Leu Ser Thr Gln
100 105 110
Val Pro Gly Tyr Gly Asn Tyr Glu Leu Thr Phe Glu Ser Lys Ser Leu
115 120 125
Arg Asn Leu Lys Tyr Lys Asn Phe Met Pro Trp Gln Ser Leu Glu Thr
130 135 140
Lys Thr Thr Gln Asp Tyr Gly Arg Glu Ile Tyr Met Ser Gly Ser His
145 150 155 160

Gly	Phe	Gln	Gly	Gly	Arg	Tyr	Arg	Leu	Gly	Ile	Ser	Arg	Lys	Asn	Leu	165	170	175
Ser	Met	Glu	Lys	Glu	Gln	Lys	Leu	Ile	Val	Gln	His	Ser	Tyr	Ile	Pro	180	185	190
Val	Glu	Glu	Ala	Leu	Pro	Gln	Tyr	Val	Gly	Val	Ile	Cys	Gln	Glu	Asp	195	200	205
Leu	Leu	Arg	Asp	Ser	Met	Glu	Glu	Lys	Tyr	Cys	Gly	Cys	Asn	Lys	Cys	210	215	220
Lys	Gly	Ile	Tyr	Tyr	Trp	Asn	Ser	Arg	Cys	Val	Phe	His	Lys	Arg	Asn	225	230	235
Gln	Pro	Gly	Glu	Asn	Leu	Cys	Gln	Cys	Ser	Ile	Arg	Lys	Ala	Cys	Phe	245	250	255
Ser	Gln	Arg	Ser	Asp	Leu	Tyr	Arg	His	Pro	Arg	Asn	His	Ile	Gly	Lys	260	265	270
Lys	Leu	Tyr	Gly	Cys	Asp	Glu	Val	Asp	Gly	Asn	Phe	His	Gln	Ser	Ser	275	280	285
Gly	Val	His	Phe	His	Gln	Arg	Val	His	Ile	Gly	Glu	Val	Pro	Tyr	Ser	290	295	300
Cys	Asn	Ala	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ile	Ser	Ser	Leu	His	Asn	305	310	315
His	Gln	Arg	Val	His	Thr	Glu	Glu	Lys	Phe	Tyr	Lys	Ile	Glu	Cys	Asp	325	330	335
Lys	Asp	Leu	Ser	Arg	Asn	Ser	Leu	Leu	His	Ile	His	Gln	Arg	Leu	His	340	345	350
Ile	Gly	Glu	Lys	Pro	Phe	Lys	Cys	Asn	Gln	Cys	Gly	Lys	Ser	Phe	Asn	355	360	365
Arg	Ser	Ser	Val	Leu	His	Val	His	Gln	Arg	Val	His	Thr	Gly	Glu	Lys	370	375	380
Pro	Tyr	Lys	Cys	Asp	Glu	Cys	Gly	Lys	Gly	Phe	Ser	Gln	Ser	Ser	Asn	385	390	395
Leu	Arg	Ile	His	Gln	Leu	Val	His	Thr	Gly	Glu	Lys	Ser	Tyr	Lys	Cys	405	410	415

Glu Asp Cys Gly Lys Gly Phe Thr Gln Arg Ser Asn Leu Gln Ile His  
 420 425 430

Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Asp Asp Cys Gly  
 435 440 445

Lys Asp Phe Ser His Ser Ser Asp Leu Arg Ile His Gln Arg Val His  
 450 455 460

Thr Gly Glu Lys Pro Tyr Thr Cys Pro Glu Cys Gly Lys Gly Phe Ser  
 465 470 475 480

Lys Ser Ser Lys Leu His Thr His Gln Arg Val His Thr Gly Glu Lys  
 485 490 495

Pro Tyr Lys Cys Glu Glu Cys Gly Lys Gly Phe Ser Gln Arg Ser His  
 500 505 510

Leu Leu Ile His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys  
 515 520 525

His Asp Cys Gly Lys Gly Phe Ser His Ser Ser Asn Leu His Ile His  
 530 535 540

Gln Arg Val His Thr Gly Glu Lys Pro Tyr Gln Cys Ala Lys Cys Gly  
 545 550 555 560

Lys Gly Phe Ser His Ser Ser Ala Leu Arg Ile His Gln Arg Val His  
 565 570 575

Ala Gly Glu Lys Pro Tyr Lys Cys Arg Glu Tyr Tyr Lys Gly Phe Asp  
 580 585 590

His Asn Ser His Leu His Asn Asn His Arg Arg Gly Asn Leu  
 595 600 605

<210> 118

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: zinc finger  
 C2H2 consensus pattern sequence

<400> 118

Tyr Lys Cys Pro Phe Asp Cys Gly Lys Ser Phe Ser Arg Lys Ser Asn

1	5	10	15
Leu	Lys	Arg	His
	Leu	Arg	Thr
	His		
	20		

<210> 119  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 119															
Tyr	Lys	Cys	Pro	Met	Cys	Arg	Glu	Phe	Phe	Ser	Glu	Arg	Ala	Asp	Leu
1				5				10						15	
Phe	Met	His	Gln	Lys	Ile	His									
			20												

<210> 120  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 120															
His	Lys	Cys	Asp	Lys	Cys	Asp	Lys	Gly	Phe	Phe	His	Ile	Ser	Glu	Leu
1				5				10						15	
His	Ile	His	Trp	Arg	Asp	His									
			20												

<210> 121  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 121															
Tyr	Lys	Cys	Asp	Asp	Cys	Gly	Lys	Asp	Phe	Ser	Thr	Thr	Thr	Lys	Leu
1				5				10						15	
Asn	Arg	His	Lys	Lys	Ile	His									
			20												

<210> 122  
 <211> 23  
 <212> PRT

<213> Homo sapiens

<400> 122

Tyr	Lys	Cys	Tyr	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Trp	Ser	Ser	His	Leu
1				5					10					15	

Gln	Ile	His	Met	Arg	Val	His
			20			

<210> 123

<211> 23

<212> PRT

<213> Homo sapiens

<400> 123

Tyr	Val	Cys	Ser	Glu	Cys	Gly	Arg	Gly	Phe	Ser	Asn	Ser	Ser	Asn	Leu
1				5					10					15	

Cys	Met	His	Gln	Arg	Val	His
			20			

<210> 124

<211> 23

<212> PRT

<213> Homo sapiens

<400> 124

Phe	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	Phe	Arg	His	Thr	Ser	Ser	Leu
1				5					10					15	

Cys	Met	His	Gln	Arg	Val	His
			20			

<210> 125

<211> 23

<212> PRT

<213> Homo sapiens

<400> 125

Tyr	Lys	Cys	Tyr	Glu	Cys	Gly	Lys	Ala	Phe	Ser	Gln	Ser	Ser	Ser	Leu
1				5					10					15	

Cys	Ile	His	Gln	Arg	Val	His
			20			

<210> 126  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 126  
 Tyr Arg Cys Cys Gly Cys Gly Lys Ala Phe Ser Gln Ser Ser Gly Leu  
           1                  5                  10                  15

Cys Ile His Gln Arg Val His  
                   20

<210> 127  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 127  
 Phe Lys Cys Asp Glu Cys Gly Lys Ala Phe Ser Gln Ser Thr Ser Leu  
           1                  5                  10                  15

Cys Ile His Gln Arg Val His  
                   20

<210> 128  
 <211> 388  
 <212> PRT  
 <213> Homo sapiens

<400> 128  
 Met Lys Trp Leu Leu Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile  
           1                  5                  10                  15

Met Tyr Lys Val Pro Leu Ile Arg Lys Lys Ser Leu Arg Arg Thr Leu  
                   20                  25                  30

Ser Glu Arg Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Leu Asn  
           35                  40                  45

Pro Ala Arg Lys Tyr Phe Pro Gln Trp Glu Ala Pro Thr Leu Val Asp  
           50                  55                  60

Glu Gln Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile  
           65                  70                  75                  80

Gly	Ile	Gly	Thr	Pro	Ala	Gln	Asp	Phe	Thr	Val	Val	Phe	Asp	Thr	Gly	85	90	95	
Ser	Ser	Asn	Leu	Trp	Val	Pro	Ser	Val	Tyr	Cys	Ser	Ser	Leu	Ala	Cys	100	105	110	
Thr	Asn	His	Asn	Arg	Phe	Asn	Pro	Glu	Asp	Ser	Ser	Thr	Tyr	Gln	Ser	115	120	125	
Thr	Ser	Glu	Thr	Val	Ser	Ile	Thr	Tyr	Gly	Thr	Gly	Ser	Met	Thr	Gly	130	135	140	
Ile	Leu	Gly	Tyr	Asp	Thr	Val	Gln	Val	Gly	Gly	Ile	Ser	Asp	Thr	Asn	145	150	155	160
Gln	Ile	Phe	Gly	Leu	Ser	Glu	Thr	Glu	Pro	Gly	Ser	Phe	Leu	Tyr	Tyr	165	170	175	
Ala	Pro	Phe	Asp	Gly	Ile	Leu	Gly	Leu	Ala	Tyr	Pro	Ser	Ile	Ser	Ser	180	185	190	
Ser	Gly	Ala	Thr	Pro	Val	Phe	Asp	Asn	Ile	Trp	Asn	Gln	Gly	Leu	Val	195	200	205	
Ser	Gln	Asp	Leu	Phe	Ser	Val	Tyr	Leu	Ser	Ala	Asp	Asp	Gln	Ser	Gly	210	215	220	
Ser	Val	Val	Ile	Phe	Gly	Gly	Ile	Asp	Ser	Ser	Tyr	Tyr	Thr	Gly	Ser	225	230	235	240
Leu	Asn	Trp	Val	Pro	Val	Thr	Val	Glu	Gly	Tyr	Trp	Gln	Ile	Thr	Val	245	250	255	
Asp	Ser	Ile	Thr	Met	Asn	Gly	Glu	Ala	Ile	Ala	Cys	Ala	Glu	Gly	Cys	260	265	270	
Gln	Ala	Ile	Val	Asp	Thr	Gly	Thr	Ser	Leu	Leu	Thr	Gly	Pro	Thr	Ser	275	280	285	
Pro	Ile	Ala	Asn	Ile	Gln	Ser	Asp	Ile	Gly	Ala	Ser	Glu	Asn	Ser	Asp	290	295	300	
Gly	Asp	Met	Val	Val	Ser	Cys	Ser	Ala	Ile	Ser	Ser	Leu	Pro	Asp	Ile	305	310	315	320
Val	Phe	Thr	Ile	Asn	Gly	Val	Gln	Tyr	Pro	Val	Pro	Pro	Ser	Ala	Tyr	325	330	335	

Ile Leu Gln Ser Glu Gly Ser Cys Ile Ser Gly Phe Gln Gly Met Asn  
 340 345 350

Leu Pro Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly Asp Val Phe Ile  
 355 360 365

Arg Gln Tyr Phe Thr Val Phe Asp Arg Ala Asn Asn Gln Val Gly Leu  
 370 375 380

Ala Pro Val Ala  
 385

<210> 129

<211> 388

<212> PRT

<213> Homo sapiens

<400> 129

Met Lys Trp Leu Leu Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile  
 1 5 10 15

Met Tyr Lys Val Pro Leu Ile Arg Lys Lys Ser Leu Arg Arg Thr Leu  
 20 25 30

Ser Glu Arg Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Leu Asn  
 35 40 45

Pro Ala Arg Lys Tyr Phe Pro Gln Trp Lys Ala Pro Thr Leu Val Asp  
 50 55 60

Glu Gln Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile  
 65 70 75 80

Gly Ile Gly Thr Pro Ala Gln Asp Phe Thr Val Leu Phe Asp Thr Gly  
 85 90 95

Ser Ser Asn Leu Trp Val Pro Ser Val Tyr Cys Ser Ser Leu Ala Cys  
 100 105 110

Thr Asn His Asn Arg Phe Asn Pro Glu Asp Ser Ser Thr Tyr Gln Ser  
 115 120 125

Thr Ser Glu Thr Val Ser Ile Thr Tyr Gly Thr Gly Ser Met Thr Gly  
 130 135 140

Ile Leu Gly Tyr Asp Thr Val Gln Val Gly Gly Ile Ser Asp Thr Asn  
 145 150 155 160



Gln Ile Phe Gly Leu Ser Glu Thr Glu Pro Gly Ser Phe Leu Tyr Tyr  
165 170 175

Ala Pro Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Ile Ser Ser  
180 185 190

Ser Gly Ala Thr Pro Val Phe Asp Asn Ile Trp Asn Gln Gly Leu Val  
195 200 205

Ser Gln Asp Leu Phe Ser Val Tyr Leu Ser Ala Asp Asp Gln Ser Gly  
210 215 220

Ser Val Val Ile Phe Gly Gly Ile Asp Ser Ser Tyr Tyr Thr Gly Ser  
225 230 235 240

Leu Asn Trp Val Pro Val Thr Val Glu Gly Tyr Trp Gln Ile Thr Val  
245 250 255

Asp Ser Ile Thr Met Asn Gly Glu Ala Ile Ala Cys Ala Glu Gly Cys  
260 265 270

Gln Ala Ile Val Asp Thr Gly Thr Ser Leu Leu Thr Gly Pro Thr Ser  
275 280 285

Pro Ile Ala Asn Ile Gln Ser Asp Ile Gly Ala Ser Glu Asn Ser Asp  
290 295 300

Gly Asp Met Val Val Ser Cys Ser Ala Ile Ser Ser Leu Pro Asp Ile  
305 310 315 320

Val Phe Thr Ile Asn Gly Val Gln Tyr Pro Val Pro Pro Ser Ala Tyr  
325 330 335

Ile Leu Gln Ser Glu Gly Ser Cys Ile Ser Gly Phe Gln Gly Met Asn  
340 345 350

Leu Pro Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly Asp Val Phe Ile  
355 360 365

Arg Gln Tyr Phe Thr Val Phe Glu Arg Ala Asn Asn Gln Val Gly Leu  
370 375 380

Ala Pro Val Ala  
385

<210> 130

<211> 388

<212> PRT

<213> Homo sapiens

<400> 130

Met Lys Trp Leu Leu Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile  
1 5 10 15

Met Tyr Lys Val Pro Leu Ile Arg Lys Lys Ser Phe Arg Arg Thr Leu  
20 25 30

Ser Glu Arg Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Leu Asn  
35 40 45

Pro Ala Arg Lys Tyr Phe Pro Gln Trp Lys Ala Pro Thr Leu Val Asp  
50 55 60

Glu Gln Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile  
65 70 75 80

Gly Ile Gly Thr Pro Ala Gln Asp Phe Thr Val Leu Phe Asp Thr Gly  
85 90 95

Ser Ser Asn Leu Trp Val Pro Ser Val Tyr Cys Ser Ser Leu Ala Cys  
100 105 110

Thr Asn His Asn Arg Phe Asn Pro Glu Asp Ser Ser Thr Tyr Gln Ser  
115 120 125

Thr Ser Glu Thr Val Ser Ile Thr Tyr Gly Thr Gly Ser Met Thr Gly  
130 135 140

Ile Leu Gly Tyr Asp Thr Val Gln Val Gly Gly Ile Ser Asp Thr Asn  
145 150 155 160

Gln Ile Phe Gly Leu Ser Glu Thr Glu Pro Gly Ser Phe Leu Tyr Tyr  
165 170 175

Ala Pro Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Ile Ser Ser  
180 185 190

Ser Gly Ala Thr Pro Val Phe Asp Asn Ile Trp Asn Gln Gly Leu Val  
195 200 205

Ser Gln Asp Leu Phe Ser Val Tyr Leu Ser Ala Asp Asp Gln Ser Gly  
210 215 220

Ser Val Val Ile Phe Gly Gly Ile Asp Ser Ser Tyr Tyr Thr Gly Ser



Pro Ala Arg Lys Tyr Phe Pro Gln Trp Glu Ala Pro Thr Leu Val Asp  
 50 55 60

Glu Gln Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile  
 65 70 75 80

Gly Ile Gly Thr Pro Ala Gln Asp Phe Thr Val Leu Phe Asp Thr Gly  
 85 90 95

Ser Ser Asn Leu Trp Val Pro Ser Val Tyr Cys Ser Ser Leu Ala Cys  
 100 105 110

Thr Asn His Asn Arg Phe Asn Pro Glu Asp Ser Ser Thr Tyr Gln Ser  
 115 120 125

Thr Ser Glu Thr Val Ser Ile Thr Tyr Gly Thr Gly Ser Met Thr Gly  
 130 135 140

Ile Leu Gly Tyr Asp Thr Val Gln Val Gly Gly Ile Ser Asp Thr Asn  
 145 150 155 160

Gln Ile Phe Gly Leu Ser Glu Thr Glu Pro Gly Ser Phe Leu Tyr Tyr  
 165 170 175

Ala Pro Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Ile Ser Ser  
 180 185 190

Ser Gly Ala Thr Pro Val Phe Asp Asn Ile Trp Asn Gln Gly Leu Val  
 195 200 205

Ser Gln Asp Leu Phe Ser Val Tyr Leu Ser Ala Asp Asp Lys Ser Gly  
 210 215 220

Ser Val Val Ile Phe Gly Gly Ile Asp Ser Ser Tyr Tyr Thr Gly Ser  
 225 230 235 240

Leu Asn Trp Val Pro Val Thr Val Glu Gly Tyr Trp Gln Ile Thr Val  
 245 250 255

Asp Ser Ile Thr Met Asn Gly Glu Thr Ile Ala Cys Ala Glu Gly Cys  
 260 265 270

Gln Ala Ile Val Asp Thr Gly Thr Ser Leu Leu Thr Gly Pro Thr Ser  
 275 280 285

Pro Ile Ala Asn Ile Gln Ser Asp Ile Gly Ala Ser Glu Asn Ser Asp  
 290 295 300

Gly Asp Met Val Val Ser Cys Ser Ala Ile Ser Ser Leu Pro Asp Ile  
 305 310 315 320

Val Phe Thr Ile Asn Gly Val Gln Tyr Pro Val Pro Pro Ser Ala Tyr  
 325 330 335

Ile Leu Gln Ser Glu Gly Ser Cys Ile Ser Gly Phe Gln Gly Met Asn  
 340 345 350

Val Pro Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly Asp Val Phe Ile  
 355 360 365

Arg Gln Tyr Phe Thr Val Phe Glu Arg Ala Asn Asn Gln Val Gly Leu  
 370 375 380

Ala Pro Val Ala  
 385

<210> 132

<211> 328

<212> PRT

<213> *Macaca fuscata*

<400> 132

Met Lys Trp Leu Leu Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile  
 1 5 10 15

Ile His Lys Val Pro Leu Val Arg Lys Lys Ser Leu Arg Arg Asn Leu  
 20 25 30

Ser Glu His Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Phe Asn  
 35 40 45

Pro Ala Ser Lys Tyr Phe Pro Gln Ala Glu Ala Pro Thr Leu Ile Asp  
 50 55 60

Glu Gln Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile  
 65 70 75 80

Gly Ile Gly Thr Pro Ala Gln Asp Phe Thr Val Ile Phe Asp Thr Gly  
 85 90 95

Ser Ser Asn Leu Trp Val Pro Ser Val Tyr Cys Ser Ser Leu Ala Cys  
 100 105 110

Thr Asn His Asn Arg Phe Asn Pro Gln Asp Ser Ser Thr Tyr Gln Ser  
 115 120 125

Thr Ser Gly Thr Val Ser Ile Thr Tyr Gly Thr Gly Ser Met Thr Gly  
130 135 140

Ile Leu Gly Tyr Asp Thr Val Gln Val Gly Gly Ile Ser Asp Thr Asn  
145 150 155 160

Gln Ile Phe Gly Leu Ser Glu Thr Glu Pro Gly Ser Phe Leu Tyr Tyr  
165 170 175

Ala Pro Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Ile Ser Ser  
180 185 190

Ser Gly Ala Thr Pro Val Phe Asp Asn Ile Trp Asn Gln Gly Leu Val  
195 200 205

Ser Gln Asp Leu Phe Ser Val Tyr Leu Ser Ala Asp Asp Gln Ser Gly  
210 215 220

Ser Val Val Ile Phe Gly Gly Ile Asp Ser Ser Tyr Tyr Thr Gly Ser  
225 230 235 240

Leu Asn Trp Val Pro Val Ser Val Glu Gly Tyr Trp Gln Ile Ser Val  
245 250 255

Asp Ser Ile Thr Met Asn Gly Glu Ala Ile Ala Cys Ala Glu Gly Cys  
260 265 270

Gln Ala Ile Val Asp Thr Gly Thr Ser Leu Leu Thr Ile Ser Gly Phe  
275 280 285

Gln Gly Met Asp Val Pro Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly  
290 295 300

Asp Val Phe Ile Arg Gln Tyr Phe Thr Val Phe Asp Arg Ala Asn Asn  
305 310 315 320

Gln Val Gly Leu Ala Pro Val Ala  
325

<210> 133

<211> 369

<212> PRT

<213> Homo sapiens

<400> 133

Lys Val Pro Leu Ile Arg Lys Lys Ser Leu Arg Arg Thr Leu Ser Glu

1	5	10	15
Arg Gly Leu Leu Lys Asp Phe Leu Lys Lys His Asn Leu Asn Pro Ala	20	25	30
Arg Lys Tyr Phe Pro Gln Trp Glu Ala Pro Thr Leu Val Asp Glu Gln	35	40	45
Pro Leu Glu Asn Tyr Leu Asp Met Glu Tyr Phe Gly Thr Ile Gly Ile	50	55	60
Gly Thr Pro Ala Gln Asp Phe Thr Val Leu Phe Asp Thr Gly Ser Ser	65	70	75
Asn Leu Trp Val Pro Ser Val Tyr Cys Ser Ser Leu Ala Cys Thr Asn	85	90	95
His Asn Arg Phe Asn Pro Glu Asp Ser Ser Thr Tyr Gln Ala Thr Ser	100	105	110
Glu Thr Val Ser Ile Thr Tyr Gly Thr Gly Ser Met Thr Gly Ile Leu	115	120	125
Gly Tyr Asp Thr Val Gln Val Gly Gly Ile Ser Asp Thr Asn Gln Ile	130	135	140
Phe Gly Leu Ser Glu Thr Glu Pro Gly Ser Phe Leu Tyr Tyr Ala Pro	145	150	155
Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Ile Ser Ser Ser Gly	165	170	175
Ala Thr Pro Val Phe Asp Asn Ile Trp Asn Gln Gly Leu Val Ser Gln	180	185	190
Asp Leu Phe Ser Val Tyr Leu Ser Ala Asp Asp Gln Ser Gly Ser Val	195	200	205
Val Ile Phe Gly Gly Ile Asp Ser Ser Tyr Tyr Thr Gly Ser Leu Asn	210	215	220
Trp Val Pro Val Thr Val Glu Gly Tyr Trp Gln Ile Thr Val Asp Ser	225	230	235
Ile Thr Met Asn Gly Glu Ala Ile Ala Cys Ala Glu Gly Cys Gln Ala	245	250	255
Ile Val Asp Thr Gly Thr Ser Leu Leu Thr Gly Pro Thr Ser Pro Ile			

260	265	270
Ala Asn Ile Gln Ser Asp Ile Gly Ala Ser Glu Asn Ser Asp Gly Asp		
275	280	285
Met Val Val Ser Cys Ser Ala Ile Ser Ser Leu Pro Asp Ile Val Phe		
290	295	300
Thr Ile Asn Gly Val Gln Tyr Pro Val Pro Pro Ser Ala Tyr Ile Leu		
305	310	315 320
Gln Ser Glu Gly Ser Cys Ile Ser Gly Phe Gln Gly Met Asn Leu Pro		
	325	330 335
Thr Glu Ser Gly Glu Leu Trp Ile Leu Gly Asp Val Phe Ile Arg Gln		
	340	345 350
Tyr Phe Thr Val Phe Asp Arg Ala Asn Asn Gln Val Ser Leu Ala Pro		
	355	360 365
Val		

<210> 134

<211> 374

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Eukaryotic  
aspartyl protease domain sequence

<400> 134

Arg Ile Pro Leu Lys Lys Val Pro Ser Leu Arg Glu Lys Leu Ser Glu
1 5 10 15
Lys Gly Val Leu Leu Asp Phe Leu Val Lys Arg Lys Tyr Glu Pro Thr
20 25 30
Lys Lys Leu Thr Gly Gly Ala Ser Ser Ser Arg Ser Ala Val Glu Pro
35 40 45
Leu Leu Asn Tyr Leu Asp Ala Glu Tyr Tyr Gly Thr Ile Ser Ile Gly
50 55 60
Thr Pro Pro Gln Lys Phe Thr Val Val Phe Asp Thr Gly Ser Ser Asp
65 70 75 80



Leu	Trp	Val	Pro	Ser	Val	Tyr	Cys	Thr	Ser	Ser	Tyr	Ala	Cys	Lys	Gly	85	90	95
His	Gly	Thr	Phe	Asp	Pro	Ser	Lys	Ser	Ser	Thr	Tyr	Lys	Asn	Leu	Gly	100	105	110
Thr	Thr	Phe	Ser	Ile	Ser	Tyr	Gly	Asp	Gly	Ser	Ser	Ala	Ser	Gly	Phe	115	120	125
Leu	Gly	Gln	Asp	Thr	Val	Thr	Val	Gly	Gly	Ile	Thr	Val	Thr	Asn	Gln	130	135	140
Gln	Phe	Gly	Leu	Ala	Thr	Lys	Glu	Pro	Gly	Ser	Phe	Phe	Ala	Thr	Ala	145	150	155
Val	Phe	Asp	Gly	Ile	Leu	Gly	Leu	Gly	Phe	Pro	Ser	Ile	Glu	Ala	Gly	165	170	175
Gly	Pro	Tyr	Thr	Pro	Val	Phe	Asp	Asn	Leu	Lys	Ser	Gln	Gly	Leu	Ile	180	185	190
Asp	Ser	Pro	Ala	Phe	Ser	Val	Tyr	Leu	Asn	Ser	Asp	Ser	Gly	Ala	Gly	195	200	205
Gly	Glu	Ile	Ile	Phe	Gly	Gly	Val	Asp	Pro	Ser	Lys	Tyr	Thr	Gly	Ser	210	215	220
Leu	Thr	Trp	Val	Pro	Val	Thr	Ser	Gln	Gly	Tyr	Trp	Gln	Ile	Thr	Leu	225	230	235
Asp	Ser	Ile	Thr	Val	Gly	Gly	Ser	Thr	Thr	Phe	Cys	Ser	Ser	Gly	Cys	245	250	255
Gln	Ala	Ile	Leu	Asp	Thr	Gly	Thr	Ser	Leu	Leu	Tyr	Gly	Pro	Thr	Ser	260	265	270
Ile	Val	Ser	Lys	Ile	Ala	Lys	Ala	Val	Gly	Ala	Ser	Leu	Ser	Glu	Tyr	275	280	285
Ser	Gly	Glu	Tyr	Val	Ile	Asp	Cys	Asp	Ser	Ile	Ser	Ser	Leu	Pro	Asp	290	295	300
Ile	Thr	Phe	Phe	Ile	Gly	Gly	Ala	Lys	Ile	Thr	Val	Pro	Pro	Ser	Ala	305	310	315
Tyr	Val	Leu	Gln	Pro	Ser	Ser	Gly	Gly	Ser	Asp	Ile	Cys	Leu	Ser	Gly	325	330	335

Phe Gln Ser Asp Asp Ile Pro Gly Gly Pro Leu Trp Ile Leu Gly Asp  
 340 345 350

Val Phe Leu Arg Ser Ala Tyr Val Val Phe Asp Arg Asp Asn Asn Arg  
 355 360 365

Ile Gly Leu Ala Pro Ala  
 370

<210> 135

<211> 208

<212> PRT

<213> Mus musculus

<400> 135

Met Lys Val Thr Leu Val His Leu Leu Phe Met Met Leu Leu Leu Leu  
 1 5 10 15

Leu Gly Leu Gly Leu Gly Leu Gly Leu Gly Leu His Met Ala Ala Ala  
 20 25 30

Val Leu Glu Asp Gln Pro Leu Asn Glu Phe Trp Pro Ser Asp Ser Gln  
 35 40 45

Asn Thr Glu Glu Gly Glu Gly Ile Trp Thr Thr Glu Gly Leu Ala Leu  
 50 55 60

Gly Tyr Lys Glu Met Ala Gln Pro Val Trp Pro Glu Glu Ala Val Leu  
 65 70 75 80

Ser Glu Asp Glu Val Gly Gly Ser Arg Met Leu Arg Ala Glu Pro Arg  
 85 90 95

Phe Gln Ser Lys Gln Asp Tyr Leu Lys Phe Asp Leu Ser Val Arg Asp  
 100 105 110

Cys Asn Thr Met Met Ala His Lys Ile Lys Glu Pro Asn Gln Ser Cys  
 115 120 125

Ile Asn Gln Tyr Thr Phe Ile His Glu Asp Pro Asn Thr Val Lys Ala  
 130 135 140

Val Cys Asn Gly Ser Leu Val Asp Cys Asp Leu Gln Gly Gly Lys Cys  
 145 150 155 160

Tyr Lys Ser Pro Arg Pro Phe Asp Leu Thr Leu Cys Lys Leu Ala Lys

165	170	175
Pro Gly Gln Val Thr Pro Asn Cys His Tyr Leu Thr Tyr Ile Thr Glu		
180	185	190
Lys Ser Ile Phe Met Thr Cys Asn Asp Lys Arg Gln Leu Glu Thr Lys		
195	200	205

<210> 136  
 <211> 149  
 <212> PRT  
 <213> Mus pahari

<400> 136

Met Gly Leu Glu Lys Ser Leu Ile Leu Phe Pro Leu Phe Val Leu Leu		
1	5	10
15		
Leu Gly Trp Val Gln Pro Ser Leu Gly Lys Glu Ser Ser Ala Gln Lys		
20	25	30
Phe Glu Arg Gln His Met Asp Ser Ser Gly Ser Ser Asn Asn Ser Pro		
35	40	45
Thr Tyr Cys Asn Gln Met Met Lys Ser Arg Ser Met Thr Lys Glu Ser		
50	55	60
Cys Lys Pro Val Asn Thr Phe Val His Glu Pro Leu Glu Asp Val Gln		
65	70	75
80		
Ala Ile Cys Ser Gln Glu Asn Val Thr Cys Lys Asn Gly Asn Arg Asn		
85	90	95
Cys Tyr Lys Ser Ser Ser Ala Leu His Ile Thr Asp Cys His Leu Lys		
100	105	110
Gly Asn Ser Lys Tyr Pro Asn Cys Asn Tyr Asn Thr Asn Gln Tyr Gln		
115	120	125
Lys His Ile Ile Val Ala Cys Asp Gly Asn Pro Tyr Val Pro Val His		
130	135	140
Leu Asp Ala Thr Val		
145		

<210> 137  
 <211> 125  
 <212> PRT  
 <213> Homo sapiens

<400> 137  
 Xaa Lys Glu Ser Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser  
       1                  5                  10                  15  
 Gly Asn Ser Pro Ser Ser Ser Ser Thr Tyr Cys Asn Gln Met Met Arg  
                   20                  25                  30  
 Arg Arg Asn Met Thr Gln Gly Arg Cys Lys Pro Val Asn Thr Phe Val  
           35                  40                  45  
 His Glu Ser Leu Val Asp Val Gln Asn Val Cys Phe Gln Glu Lys Val  
       50                  55                  60  
 Thr Cys Lys Asn Gly Gln Gly Asn Cys Tyr Lys Ser Asn Ser Ser Met  
       65                  70                  75                  80  
 His Ile Thr Asp Cys Arg Leu Thr Asn Gly Ser Arg Tyr Pro Asn Cys  
                   85                  90                  95  
 Ala Tyr Arg Thr Ser Pro Lys Glu Arg His Ile Ile Val Ala Cys Glu  
           100                  105                  110  
 Gly Ser Pro Tyr Val Pro Val His Phe Asp Ala Ser Val  
           115                  120                  125

<210> 138  
 <211> 128  
 <212> PRT  
 <213> Presbytis entellus

<400> 138  
 Gly Glu Ser Arg Ala Glu Lys Phe Gln Arg Gln His Met Asp Ser Gly  
       1                  5                  10                  15  
 Ser Ser Pro Ser Ser Ser Ser Thr Tyr Cys Asn Gln Met Met Lys Leu  
           20                  25                  30  
 Arg Asn Met Thr Gln Gly Ser Cys Lys Ser Val Asn Thr Phe Val His  
           35                  40                  45  
 Glu Pro Leu Val Asp Val Gln Asn Val Cys Phe Gln Glu Lys Val Thr

50		55		60												
Cys	Lys	Asn	Gly	Gln	Thr	Asn	Cys	Phe	Lys	Ser	Asn	Ser	Arg	Met	His	
65					70					75					80	
Ile	Thr	Glu	Cys	Arg	Leu	Thr	Asn	Gly	Ser	Lys	Tyr	Pro	Asn	Cys	Ala	
			85						90					95		
Tyr	Gly	Thr	Ser	Pro	Lys	Glu	Arg	His	Ile	Ile	Val	Ala	Cys	Glu	Gly	
			100					105						110		
Ser	Pro	Tyr	Val	Pro	Val	His	Phe	Asp	Asp	Ser	Val	Glu	Asp	Ser	Thr	
		115					120					125				

<210> 139  
 <211> 119  
 <212> PRT  
 <213> Iguana iguana

<400> 139

Gln	Asp	Trp	Ser	Ser	Phe	Gln	Asn	Lys	His	Ile	Asp	Tyr	Pro	Glu	Thr	
1				5					10					15		
Ser	Ala	Ser	Asn	Pro	Asn	Ala	Tyr	Cys	Asp	Leu	Met	Met	Gln	Arg	Arg	
			20					25					30			
Asn	Leu	Asn	Pro	Thr	Lys	Cys	Lys	Thr	Arg	Asn	Thr	Phe	Val	His	Ala	
		35					40					45				
Ser	Pro	Ser	Glu	Ile	Gln	Gln	Val	Cys	Gly	Ser	Gly	Gly	Thr	His	Tyr	
	50					55						60				
Glu	Asp	Asn	Leu	Tyr	Asp	Ser	Asn	Glu	Ser	Phe	Asp	Leu	Thr	Asp	Cys	
65					70					75					80	
Lys	Asn	Val	Gly	Gly	Thr	Ala	Pro	Ser	Ser	Cys	Lys	Tyr	Asn	Gly	Thr	
			85						90					95		
Pro	Gly	Thr	Lys	Arg	Ile	Arg	Ile	Ala	Cys	Glu	Asn	Asn	Gln	Pro	Val	
			100					105					110			
His	Phe	Glu	Leu	Val	Leu	Ser										
		115														

<210> 140

<211> 105

<212> PRT

<213> Homo sapiens

<400> 140

His Val Asp Tyr Pro Gln Asn Asp Val Pro Val Pro Ala Arg Tyr Cys  
1 5 10 15

Asn His Met Ile Ile Gln Arg Val Ile Arg Glu Pro Asp His Thr Cys  
20 25 30

Lys Lys Glu His Val Phe Ile His Glu Arg Pro Arg Lys Ile Asn Gly  
35 40 45

Ile Cys Ile Ser Pro Lys Lys Val Ala Cys Gln Asn Leu Ser Ala Ile  
50 55 60

Phe Cys Phe Gln Ser Glu Thr Lys Phe Lys Met Thr Val Cys Gln Leu  
65 70 75 80

Ile Glu Gly Thr Arg Tyr Pro Ala Cys Arg Tyr His Tyr Ser Pro Thr  
85 90 95

Glu Gly Phe Val Leu Val Thr Cys Asp  
100 105

<210> 141

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: RNase\_Pc,  
Pancreatic ribonuclease

<400> 141

His Ile Asp Ser Thr Pro Ser Ser Ala Ser Asp Asn Tyr Cys Asn Gln  
1 5 10 15

Met Met Lys Arg Arg Asn Met Thr Gln Gly Arg Cys Lys Pro Val Asn  
20 25 30

Thr Phe Val His Glu Ser Leu Ala Asp Val Lys Ala Val Cys Ser Gln  
35 40 45

Lys Asn Val Thr Cys Lys Asn Gly Arg Thr Asn Cys His Gln Ser Asn  
50 55 60

Ser Arg Phe Gln Leu Thr Asp Cys Arg Leu Thr Gly Gly Ser Lys Tyr  
65 70 75 80

Pro Asn Cys Arg Tyr Lys Thr Thr Gln Ala Asn Lys His Ile Ile Val  
85 90 95

Ala Cys Glu

<210> 142

<211> 93

<212> PRT

<213> Homo sapiens

<400> 142

Ala Arg Tyr Cys Asn His Met Ile Ile Gln Arg Val Ile Arg Glu Pro  
1 5 10 15

Asp His Thr Cys Lys Lys Glu His Val Phe Ile His Glu Arg Pro Arg  
20 25 30

Lys Ile Asn Gly Ile Cys Ile Ser Pro Lys Lys Val Ala Cys Gln Asn  
35 40 45

Leu Ser Ala Ile Phe Cys Phe Gln Ser Glu Thr Lys Phe Lys Met Thr  
50 55 60

Val Cys Gln Leu Ile Glu Gly Thr Arg Tyr Pro Ala Cys Arg Tyr His  
65 70 75 80

Tyr Ser Pro Thr Glu Gly Phe Val Leu Val Thr Cys Asp  
85 90

<210> 143

<211> 89

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: rnaseA,  
Pancreatic ribonuclease

<400> 143

Asp Asn Tyr Cys Asn Gln Met Met Lys Arg Arg Asn Met Thr Gln Gly  
 1 5 10 15  
 Arg Cys Lys Pro Val Asn Thr Phe Val His Glu Ser Leu Ala Asp Val  
 20 25 30  
 Lys Ala Val Cys Ser Gln Lys Asn Val Thr Cys Lys Asn Gly Gln Lys  
 35 40 45  
 Asn Cys Tyr Gln Ser Thr Ser Ser Phe Gln Leu Thr Asp Cys Arg Leu  
 50 55 60  
 Thr Gly Gly Ser Lys Tyr Pro Asn Cys Arg Tyr Arg Thr Thr Pro Gly  
 65 70 75 80  
 Asn Lys Arg Ile Ile Val Ala Cys Glu  
 85

<210> 144  
 <211> 698  
 <212> PRT  
 <213> Mus musculus

<400> 144  
 Met Glu Lys Tyr Glu Arg Ile Arg Val Val Gly Arg Gly Ala Phe Gly  
 1 5 10 15  
 Ile Val His Leu Cys Leu Arg Lys Ala Asp Gln Lys Leu Val Ile Leu  
 20 25 30  
 Lys Gln Ile Pro Val Glu Gln Met Thr Lys Glu Glu Arg Gln Ala Ala  
 35 40 45  
 Gln Asn Glu Cys Gln Val Leu Lys Leu Leu Asn His Pro Asn Val Ile  
 50 55 60  
 Glu Tyr Tyr Glu Asn Phe Leu Glu Asp Lys Ala Leu Met Ile Ala Met  
 65 70 75 80  
 Glu Tyr Ala Pro Gly Gly Thr Leu Ala Glu Phe Ile Gln Lys Arg Cys  
 85 90 95  
 Asn Ser Leu Leu Glu Glu Glu Thr Ile Leu His Phe Phe Val Gln Ile  
 100 105 110  
 Leu Leu Ala Leu His His Val His Thr His Leu Ile Leu His Arg Asp  
 115 120 125



Leu	Lys	Thr	Gln	Asn	Ile	Leu	Leu	Asp	Lys	His	Arg	Met	Val	Val	Lys	
130						135					140					
Ile	Gly	Asp	Phe	Gly	Ile	Ser	Lys	Ile	Leu	Ser	Ser	Lys	Ser	Lys	Ala	
145					150					155					160	
Tyr	Thr	Val	Val	Gly	Thr	Pro	Cys	Tyr	Ile	Ser	Pro	Glu	Leu	Cys	Glu	
				165					170					175		
Gly	Lys	Pro	Tyr	Asn	Gln	Lys	Ser	Asp	Ile	Trp	Ala	Leu	Gly	Cys	Val	
			180					185					190			
Leu	Tyr	Glu	Leu	Ala	Ser	Leu	Lys	Arg	Ala	Phe	Glu	Ala	Ala	Asn	Leu	
	195						200					205				
Pro	Ala	Leu	Val	Leu	Lys	Ile	Met	Ser	Gly	Thr	Phe	Ala	Pro	Ile	Ser	
	210					215						220				
Asp	Arg	Tyr	Ser	Pro	Glu	Leu	Arg	Gln	Leu	Val	Leu	Ser	Leu	Leu	Ser	
225					230					235					240	
Leu	Glu	Pro	Ala	Gln	Arg	Pro	Pro	Leu	Ser	His	Ile	Met	Ala	Gln	Pro	
				245					250					255		
Leu	Cys	Ile	Arg	Ala	Leu	Leu	Asn	Ile	His	Thr	Asp	Val	Gly	Ser	Val	
			260					265					270			
Arg	Met	Arg	Arg	Ala	Glu	Lys	Ser	Leu	Thr	Pro	Gly	Pro	Pro	Ile	Ala	
	275						280					285				
Ser	Gly	Ser	Thr	Gly	Ser	Arg	Ala	Thr	Ser	Ala	Arg	Cys	Arg	Gly	Val	
	290					295					300					
Pro	Arg	Gly	Pro	Val	Arg	Pro	Ala	Ile	Pro	Pro	Pro	Leu	Ser	Ser	Val	
305					310					315					320	
Tyr	Ala	Trp	Gly	Gly	Gly	Leu	Ser	Ser	Pro	Leu	Arg	Leu	Pro	Met	Leu	
			325						330					335		
Asn	Thr	Glu	Val	Val	Gln	Val	Ala	Ala	Gly	Arg	Thr	Gln	Lys	Ala	Gly	
			340					345					350			
Val	Thr	Arg	Ser	Gly	Arg	Leu	Ile	Leu	Trp	Glu	Ala	Pro	Pro	Leu	Gly	
		355					360					365				
Ala	Gly	Gly	Gly	Thr	Leu	Leu	Pro	Gly	Ala	Val	Glu	Leu	Pro	Gln	Pro	
	370					375					380					

Gln	Phe	Val	Ser	Arg	Phe	Leu	Glu	Gly	Gln	Ser	Gly	Val	Thr	Ile	Lys	
385					390					395					400	
His	Val	Ala	Cys	Gly	Asp	Leu	Phe	Thr	Ala	Cys	Leu	Thr	Asp	Arg	Gly	
				405					410					415		
Ile	Ile	Met	Thr	Phe	Gly	Ser	Gly	Ser	Asn	Gly	Cys	Leu	Gly	His	Gly	
			420					425					430			
Asn	Leu	Thr	Asp	Ile	Ser	Gln	Pro	Thr	Ile	Val	Glu	Ala	Leu	Leu	Gly	
		435					440					445				
Tyr	Glu	Met	Val	Gln	Val	Ala	Cys	Gly	Ala	Ser	His	Val	Leu	Ala	Leu	
	450					455					460					
Ser	Thr	Asp	Gly	Glu	Leu	Phe	Ala	Trp	Gly	Arg	Gly	Asp	Gly	Gly	Arg	
465					470					475					480	
Leu	Gly	Leu	Gly	Thr	Arg	Glu	Ser	His	Asn	Cys	Pro	Gln	Gln	Val	Pro	
				485					490					495		
Val	Ala	Pro	Gly	Gln	Glu	Ala	Gln	Arg	Val	Val	Cys	Gly	Ile	Asp	Ser	
			500					505					510			
Ser	Met	Ile	Leu	Thr	Ser	Pro	Gly	Arg	Val	Leu	Ala	Cys	Gly	Ser	Asn	
	515						520					525				
Arg	Phe	Asn	Lys	Leu	Gly	Leu	Asp	His	Leu	Ser	Leu	Asp	Glu	Glu	Pro	
	530					535					540					
Val	Pro	Tyr	Gln	Gln	Val	Glu	Glu	Ala	Leu	Ser	Phe	Thr	Pro	Leu	Gly	
545					550					555					560	
Ser	Ala	Pro	Leu	Asp	Gln	Glu	Pro	Leu	Leu	Cys	Val	Asp	Leu	Gly	Thr	
				565					570					575		
Ala	His	Ser	Ala	Ala	Ile	Thr	Ala	Ser	Gly	Asp	Cys	Tyr	Thr	Phe	Gly	
			580					585					590			
Ser	Asn	Gln	His	Gly	Gln	Leu	Gly	Thr	Ser	Ser	Arg	Arg	Val	Ser	Arg	
	595						600					605				
Ala	Pro	Cys	Arg	Val	Gln	Gly	Leu	Glu	Gly	Ile	Lys	Met	Val	Met	Val	
	610					615					620					
Ala	Cys	Gly	Asp	Ala	Phe	Thr	Val	Ala	Val	Gly	Ala	Glu	Gly	Glu	Val	
625					630					635					640	

Tyr Ser Trp Gly Lys Gly Thr Arg Gly Arg Leu Gly Arg Arg Asp Glu  
645 650 655

Asp Ala Gly Leu Pro Arg Pro Val Gln Leu Asp Glu Thr His Pro Tyr  
660 665 670

Met Val Thr Ser Val Ser Cys Cys His Gly Asn Thr Leu Leu Ala Val  
675 680 685

Arg Ser Val Thr Asp Glu Pro Val Pro Pro  
690 695

<210> 145

<211> 291

<212> PRT

<213> Mus musculus

<400> 145

Met Glu Lys Tyr Glu Arg Ile Arg Val Val Gly Arg Gly Ala Leu Gly  
1 5 10 15

Ile Val His Leu Cys Leu Arg Lys Ala Asp Gln Lys Leu Val Ile Leu  
20 25 30

Lys Gln Ile Pro Val Glu Gln Met Thr Lys Glu Glu Arg Gln Ala Ala  
35 40 45

Gln Asn Glu Cys Gln Val Leu Lys Leu Leu Asn His Pro Asn Val Ile  
50 55 60

Glu Tyr Tyr Glu Asn Phe Leu Glu Asp Lys Ala Leu Met Ile Ala Met  
65 70 75 80

Glu Tyr Ala Pro Gly Gly Thr Leu Ala Glu Phe Ile Gln Lys Arg Cys  
85 90 95

Asn Ser Leu Leu Glu Glu Glu Thr Ile Leu His Phe Phe Val Gln Ile  
100 105 110

Leu Leu Ala Leu His His Val His Thr His Leu Ile Leu His Arg Asp  
115 120 125

Leu Lys Thr Gln Asn Ile Leu Leu Asp Lys His Arg Met Val Val Lys  
130 135 140

Ile Gly Asp Phe Gly Ile Ser Lys Ile Leu Ser Ser Lys Ser Lys Ala

145                      150                      155                      160  
 Tyr Thr Val Val Gly Thr Pro Cys Tyr Ile Ser Pro Glu Leu Cys Glu  
                                  165                      170                      175  
 Gly Lys Pro Tyr Asn Gln Lys Ser Asp Ile Trp Ala Leu Gly Cys Val  
                                  180                      185                      190  
 Leu Tyr Glu Leu Ala Ser Leu Lys Arg Ala Phe Glu Ala Ala Asn Leu  
                                  195                      200                      205  
 Pro Ala Leu Val Leu Lys Ile Met Ser Gly Thr Phe Ala Pro Ile Ser  
                                  210                      215                      220  
 Asp Arg Tyr Ser Pro Glu Leu Arg Gln Leu Val Leu Ser Leu Leu Ser  
 225                                   230                      235                      240  
 Leu Glu Pro Ala Gln Gly Pro Pro Leu Ser His Ile Met Ala Gln Pro  
                                  245                      250                      255  
 Leu Cys Ile Arg Ala Leu Leu Asn Ile His Thr Asp Val Gly Ser Val  
                                  260                      265                      270  
 Arg Met Arg Arg Pro Val Gln Gly Asp Gly Ser Trp Gly Gly His Pro  
                                  275                      280                      285  
 Val Arg Thr  
                                  290

<210> 146  
 <211> 696  
 <212> PRT  
 <213> Danio rerio

<400> 146  
 Met Glu Lys Tyr Glu Lys Thr Lys Val Val Gly Arg Gly Ala Phe Gly  
   1                                    5                                    10                                    15  
 Ile Val His Leu Cys Arg Arg Arg Thr Asp Ser Ala Leu Val Ile Leu  
                                  20                                    25                                    30  
 Lys Glu Ile Pro Val Glu Gln Met Thr Arg Asp Glu Arg Leu Ala Ala  
                                  35                                    40                                    45  
 Gln Asn Glu Cys Gln Val Leu Lys Leu Leu Ser His Pro Asn Ile Ile  
                                  50                                    55                                    60

Glu	Tyr	Tyr	Glu	Asn	Phe	Leu	Glu	Asp	Lys	Ala	Leu	Met	Ile	Ala	Met	65	70	75	80
Glu	Tyr	Ala	Pro	Gly	Gly	Thr	Leu	Ala	Asp	Tyr	Ile	Gln	Lys	Arg	Cys	85	90	95	
Asn	Ser	Leu	Leu	Asp	Glu	Asp	Thr	Ile	Leu	His	Ser	Phe	Val	Gln	Ile	100	105	110	
Leu	Leu	Ala	Leu	Tyr	His	Val	His	Asn	Lys	Leu	Ile	Leu	His	Arg	Asp	115	120	125	
Leu	Lys	Thr	Gln	Asn	Ile	Leu	Leu	Asp	Lys	His	Gln	Met	Ile	Val	Lys	130	135	140	
Ile	Gly	Asp	Phe	Gly	Ile	Ser	Lys	Ile	Leu	Val	Ser	Lys	Ser	Lys	Ala	145	150	155	160
Tyr	Thr	Val	Val	Gly	Thr	Pro	Cys	Tyr	Ile	Ser	Pro	Glu	Leu	Cys	Glu	165	170	175	
Gly	Lys	Pro	Tyr	Asn	Gln	Lys	Ser	Asp	Ile	Trp	Ala	Leu	Gly	Cys	Val	180	185	190	
Leu	Tyr	Glu	Leu	Ala	Ser	Leu	Lys	Arg	Ala	Phe	Glu	Ala	Ala	Asn	Leu	195	200	205	
Pro	Ala	Leu	Val	Leu	Lys	Ile	Met	Ser	Gly	Thr	Phe	Ala	Pro	Ile	Ser	210	215	220	
Asp	Arg	Tyr	Ser	Pro	Glu	Leu	Arg	Gln	Leu	Ile	Leu	Asn	Met	Leu	Asn	225	230	235	240
Leu	Asp	Pro	Ser	Lys	Arg	Pro	Gln	Leu	Asn	Glu	Ile	Met	Ala	His	Ala	245	250	255	
Ile	Cys	Ile	Arg	Pro	Leu	Leu	Asn	Leu	Tyr	Thr	Asp	Ile	Gly	Asn	Val	260	265	270	
Lys	Met	Arg	Arg	Ile	Glu	Lys	Pro	Leu	Ser	Asn	Val	Gln	Ala	Gly	Pro	275	280	285	
His	Gly	Arg	Pro	Gly	Gly	Trp	Ile	Thr	Ser	Thr	Arg	Thr	Arg	Gly	Gly	290	295	300	
Leu	Ser	Ser	Leu	Thr	Ser	Ser	Lys	Met	Met	His	Pro	Leu	Pro	Leu	Phe	305	310	315	320

Ser Val Tyr Thr Trp Gly Ser Gly Ile Ser Thr Pro Leu Arg Leu Pro  
 325 330 335  
 Met Leu Asn Thr Glu Val Ile Gln Val Ser Leu Gly Arg Thr Gln Lys  
 340 345 350  
 Met Gly Val Thr Lys Ser Arg Leu Ile Thr Trp Glu Ala Pro Ser Val  
 355 360 365  
 Gly Ser Gly Glu Pro Thr Leu Pro Gly Ala Val Glu Gln Met Gln Pro  
 370 375 380  
 Gln Phe Ile Ser Arg Phe Leu Glu Gly Gln Ser Gly Val Thr Ile Lys  
 385 390 395 400  
 Ser Val Ser Cys Gly Asp Leu Phe Thr Thr Cys Leu Thr Asp Arg Gly  
 405 410 415  
 Ile Ile Met Thr Phe Gly Ser Gly Ser Asn Gly Cys Leu Gly His Gly  
 420 425 430  
 Asn Phe Asn Asp Val Thr Gln Pro Lys Ile Val Glu Ala Leu Leu Gly  
 435 440 445  
 Tyr Glu Leu Val Gln Val Ser Cys Gly Ala Ser His Val Leu Ala Val  
 450 455 460  
 Thr Asn Glu Arg Glu Val Phe Ser Trp Gly Arg Gly Asp Asn Gly Arg  
 465 470 475 480  
 Leu Gly Leu Ala Thr Gln Asp Ser His Asn Cys Pro Gln Gln Val Ser  
 485 490 495  
 Leu Pro Ala Asp Phe Glu Ala Gln Arg Val Leu Cys Gly Val Asp Cys  
 500 505 510  
 Ser Met Ile Met Ser Thr Gln His Gln Ile Leu Ala Cys Gly Asn Asn  
 515 520 525  
 Arg Phe Asn Lys Leu Gly Leu Asp Lys Val Ser Gly Thr Glu Glu Pro  
 530 535 540  
 Ser Ser Phe Cys Gln Val Glu Glu Val His Leu Phe Gln Leu Val Gln  
 545 550 555 560  
 Ser Ala Pro Leu Asn Thr Glu Lys Ile Val Tyr Ile Asp Ile Gly Thr  
 565 570 575

Ala His Ser Val Ala Val Thr Glu Lys Gly Gln Cys Phe Thr Phe Gly  
580 585 590

Ser Asn Gln His Gly Gln Leu Gly Cys Ser His Arg Arg Ser Ser Arg  
595 600 605

Val Pro Tyr Gln Val Ser Gly Leu Gln Gly Ile Thr Met Ala Ala Cys  
610 615 620

Gly Asp Ala Phe Thr Leu Ala Ile Gly Ala Glu Gly Glu Val Tyr Thr  
625 630 635 640

Trp Gly Lys Gly Ala Arg Gly Arg Leu Gly Arg Lys Glu Glu Asp Phe  
645 650 655

Gly Ile Pro Lys Pro Val Gln Leu Asp Glu Ser His Ala Phe Thr Val  
660 665 670

Thr Ser Val Ala Cys Cys His Gly Asn Thr Leu Leu Ala Val Lys Pro  
675 680 685

Phe Phe Glu Glu Pro Gly Pro Lys  
690 695

<210> 147

<211> 357

<212> PRT

<213> Caenorhabditis elegans

<400> 147

Met Asp Asn Tyr Glu Lys Val Arg Val Val Gly Arg Gly Ala Phe Gly  
1 5 10 15

Val Cys Trp Leu Cys Arg Gly Lys Asn Asp Ala Ser His Gln Lys Val  
20 25 30

Ile Ile Lys Leu Ile Asn Thr His Gly Met Thr Glu Lys Glu Glu Asn  
35 40 45

Ser Ile Gln Ser Glu Val Asn Leu Leu Lys Lys Val Gln His Pro Leu  
50 55 60

Ile Ile Gly Tyr Ile Asp Ser Phe Ile Met Asp Asn Gln Leu Gly Ile  
65 70 75 80

Val Met Gln Tyr Ala Glu Gly Gly Thr Leu Glu Arg Leu Ile Asn Asp  
85 90 95

Gln	Arg	Ala	Ile	Lys	Asp	Ser	Asn	Met	Arg	Glu	Tyr	Phe	Pro	Glu	Lys	100	105	110	
Thr	Val	Leu	Asp	Tyr	Phe	Thr	Gln	Ile	Leu	Ile	Ala	Leu	Asn	His	Met	115	120	125	
His	Gln	Lys	Asn	Ile	Val	His	Arg	Asp	Leu	Lys	Pro	Gln	Asn	Ile	Leu	130	135	140	
Met	Asn	Arg	Arg	Lys	Thr	Val	Leu	Lys	Leu	Ser	Asp	Phe	Gly	Ile	Ser	145	150	155	160
Lys	Glu	Leu	Gly	Thr	Lys	Ser	Ala	Ala	Ser	Thr	Val	Ile	Gly	Thr	Pro	165	170	175	
Asn	Tyr	Leu	Ser	Pro	Glu	Ile	Cys	Glu	Ser	Arg	Pro	Tyr	Asn	Gln	Lys	180	185	190	
Ser	Asp	Met	Trp	Ser	Leu	Gly	Cys	Val	Leu	Tyr	Glu	Leu	Leu	Gln	Leu	195	200	205	
Glu	Arg	Ala	Phe	Asp	Gly	Glu	Asn	Leu	Pro	Ala	Ile	Val	Met	Lys	Ile	210	215	220	
Thr	Arg	Ser	Lys	Gln	Asn	Pro	Leu	Gly	Asp	His	Val	Ser	Asn	Asp	Val	225	230	235	240
Lys	Met	Leu	Val	Glu	Asn	Leu	Leu	Lys	Thr	His	Thr	Asp	Lys	Arg	Pro	245	250	255	
Asp	Val	Ser	Gln	Leu	Leu	Ser	Asp	Pro	Leu	Val	Leu	Pro	Tyr	Leu	Ile	260	265	270	
Ser	Ile	His	Cys	Asp	Leu	Gly	Arg	Ile	Glu	Pro	Pro	Pro	Thr	Asp	Lys	275	280	285	
Arg	Lys	Pro	Ser	Ala	Ser	Leu	Ser	Ser	Arg	Leu	Arg	Thr	Tyr	Pro	Thr	290	295	300	
Gln	Ser	Thr	Leu	Arg	Pro	Tyr	Ser	Leu	Ser	Ser	Asn	Ala	Pro	Thr	Thr	305	310	315	320
His	Leu	Thr	Gln	Leu	Thr	Pro	Met	Pro	Ser	His	Ile	Asp	Ser	Gly	Phe	325	330	335	
Phe	Ser	Ser	Gly	Arg	Thr	Ser	Asn	Gln	Arg	Thr	Gln	Ser	Arg	Ser	Gln	340	345	350	



Val His Ser Lys Tyr  
355

<210> 148

<211> 841

<212> PRT

<213> *Drosophila melanogaster*

<400> 148

Met Lys Lys Phe Arg Ala Lys Ala Ser Ser Leu Pro Ile Phe Asn Gly  
1 5 10 15

Arg Ile Thr Asp Ala Thr Thr Leu Thr Thr Ser Ser Leu Gln Leu Pro  
20 25 30

Leu Gly Gln Asn Thr Gln Arg Lys Gln Ser Thr Cys Thr Arg Val Leu  
35 40 45

Pro Thr Val Phe Thr Ile Thr Asp Gly Thr Thr Gly Ala Ala Ser Thr  
50 55 60

Ser Leu Ala Glu Ala Met Ser Ser Ser Lys Ala Gln Met Pro Asn Arg  
65 70 75 80

Gln Glu Ser Leu Leu Gln Leu Ser Val Pro Arg Glu Thr Gly Val Gly  
85 90 95

Val Ala Gly Pro Glu Leu Ala Asn Tyr Glu Lys Val Arg Val Val Gly  
100 105 110

Gln Gly Ser Phe Gly Ile Ala Ile Leu Tyr Arg Arg Lys Ser Asp Gly  
115 120 125

His Gln Ile Val Phe Lys Gln Ile Asn Leu Ser Glu Leu Ser Pro Pro  
130 135 140

Gly Arg Asp Leu Ala Met Asn Glu Val Asp Val Phe Ser Lys Leu His  
145 150 155 160

His Pro Asn Ile Val Ser Tyr Leu Gly Ser Phe Ile Lys Asp Asn Thr  
165 170 175

Leu Leu Ile Glu Met Glu Tyr Ala Asp Gly Gly Thr Leu Ala Gln Ile  
180 185 190

Ile Ala Glu Arg Gln Gly Lys Leu His Phe Pro Glu Arg Tyr Ile Ile

195					200					205						
Ala	Val	Phe	Glu	Gln	Ile	Ser	Ser	Ala	Ile	Asn	Tyr	Met	His	Ser	Glu	
210					215					220						
Asn	Ile	Leu	His	Arg	Asp	Leu	Lys	Thr	Ala	Asn	Val	Phe	Leu	Asn	Arg	
225					230					235					240	
Arg	Gly	Ile	Val	Lys	Ile	Gly	Asp	Phe	Gly	Ile	Ser	Lys	Ile	Met	Asn	
245					250					255						
Thr	Lys	Ile	His	Ala	Gln	Thr	Val	Leu	Gly	Thr	Pro	Tyr	Tyr	Phe	Ser	
260					265					270						
Pro	Glu	Met	Cys	Glu	Gly	Lys	Glu	Tyr	Asp	Asn	Lys	Ser	Asp	Ile	Trp	
275					280					285						
Ala	Leu	Gly	Cys	Ile	Leu	Gly	Glu	Met	Cys	Cys	Leu	Lys	Lys	Thr	Phe	
290					295					300						
Ala	Ala	Ser	Asn	Leu	Ser	Glu	Leu	Val	Thr	Lys	Ile	Met	Ala	Gly	Asn	
305					310					315					320	
Tyr	Thr	Pro	Val	Pro	Ser	Gly	Tyr	Thr	Ser	Gly	Leu	Arg	Ser	Leu	Met	
325					330					335						
Ser	Asn	Leu	Leu	Gln	Val	Glu	Ala	Pro	Arg	Arg	Pro	Thr	Ala	Ser	Glu	
340					345					350						
Val	Leu	Val	Tyr	Trp	Ile	Pro	Leu	Ile	Phe	Arg	Ser	Leu	Gly	Lys	Asn	
355					360					365						
Lys	Gly	Tyr	Ser	Tyr	Glu	Asp	Asp	Val	Gly	Gly	Pro	Gly	Ser	Asp	Gln	
370					375					380						
Leu	Thr	Ala	Pro	Val	Pro	Ala	Ala	Ala	Tyr	Ser	Asn	Val	Ser	Met	Glu	
385					390					395					400	
Leu	Glu	Leu	Pro	Thr	Ala	Gln	Thr	Glu	Thr	Lys	Gln	Leu	Met	Ile	Ala	
405					410					415						
Asp	Thr	Ala	Ala	Pro	His	Glu	Ile	Leu	Glu	Lys	Arg	Ser	Val	Leu	Tyr	
420					425					430						
Gln	Leu	Lys	Ala	Phe	Gly	Thr	Cys	Phe	Ser	Met	Ala	Pro	Ile	Gln	Leu	
435					440					445						
Pro	Pro	Lys	Ala	Val	Ile	Val	Asp	Val	Ala	Met	Ser	Asp	Ser	His	Phe	

450		455		460
Val Val Val Asn Glu Asp Gly Ser Ala Tyr Ala Trp Gly Glu Gly Thr				
465		470		475
				480
His Gly Gln Leu Gly Leu Thr Ala Leu Glu Ala Trp Lys His Tyr Pro				
	485		490	495
Ser Arg Met Glu Ser Val Arg Asn Tyr His Val Val Ser Ala Cys Ala				
	500		505	510
Gly Asp Gly Phe Thr Ile Leu Val Thr Gln Ala Gly Ser Leu Leu Ser				
	515		520	525
Cys Gly Ser Asn Ala His Leu Ala Leu Gly Gln Asp Glu Gln Arg Asn				
	530		535	540
Tyr His Ser Pro Lys Leu Ile Ala Arg Leu Ala Asp Val Arg Val Glu				
545		550		555
				560
Gln Val Ala Ala Gly Leu Gln His Val Leu Ala Leu Ser Arg Glu Gly				
	565		570	575
Ala Val Tyr Val Trp Gly Thr Ser Thr Cys Gly Ala Leu Gly Leu Gly				
	580		585	590
Asn Tyr Gln Gln Gln Gln Lys Phe Pro Gln Lys Ile Leu Leu Ser His				
	595		600	605
Val Lys Thr Lys Pro Ser Lys Ile Tyr Cys Gly Pro Asp Thr Ser Ala				
	610		615	620
Val Leu Phe Ala Asn Gly Glu Leu His Val Cys Gly Ser Asn Asp Tyr				
625		630		635
				640
Asn Lys Leu Gly Phe Gln Arg Ser Ala Lys Ile Thr Ala Phe Lys Lys				
	645		650	655
Val Gln Leu Pro His Lys Val Thr Gln Ala Cys Phe Ser Ser Thr His				
	660		665	670
Ser Val Phe Leu Val Glu Gly Gly Tyr Val Tyr Thr Met Gly Arg Asn				
	675		680	685
Ala Glu Gly Gln Arg Gly Ile Arg His Cys Asn Ser Val Asp His Pro				
	690		695	700
Thr Leu Val Asp Ser Val Lys Ser Arg Tyr Ile Val Lys Ala Asn Cys				

705		710		715		720
Ser Asp Gln Cys Thr Ile Val Ala Ser Glu Asp Asn Ile Ile Thr Val						
		725		730		735
Trp Gly Thr Arg Asn Gly Leu Pro Gly Ile Gly Ser Thr Asn Cys Gly						
		740		745		750
Leu Gly Leu Gln Ile Cys Thr Pro Asn Met Glu Leu Glu Leu Gly Asn						
		755		760		765
Asn Thr Ala Ala Phe Thr Asn Phe Leu Ala Ser Val Tyr Lys Ser Glu						
		770		775		780
Leu Ile Leu Glu Pro Val Asp Ile Leu Ala Leu Phe Ser Ser Lys Glu						
		785		790		795
Gln Cys Asp Arg Gly Tyr Tyr Val Gln Val His Asp Val Tyr Pro Leu						
		805		810		815
Ala His Ser Val Leu Val Leu Val Asp Thr Thr Thr Pro Leu Ile Ser						
		820		825		830
Ser Tyr Glu Gly Asp Tyr Pro His Leu						
		835		840		

<210> 149  
 <211> 253  
 <212> PRT  
 <213> Homo sapiens

<400> 149
Tyr Glu Arg Ile Arg Val Val Gly Arg Gly Ala Phe Gly Ile Val His
1 5 10 15
Leu Cys Leu Arg Lys Ala Asp Gln Lys Leu Val Ile Ile Lys Gln Ile
20 25 30
Pro Val Glu Gln Met Thr Lys Glu Glu Arg Gln Ala Ala Gln Asn Glu
35 40 45
Cys Gln Val Leu Lys Leu Leu Asn His Pro Asn Val Ile Glu Tyr Tyr
50 55 60
Glu Asn Phe Leu Glu Asp Lys Ala Leu Met Thr Ala Met Glu Tyr Ala
65 70 75 80

Pro Gly Gly Thr Leu Ala Glu Phe Ile Gln Lys Arg Cys Asn Ser Leu  
85 90 95

Leu Glu Glu Glu Thr Ile Leu His Phe Phe Val Gln Ile Leu Leu Ala  
100 105 110

Leu His His Val His Thr His Leu Ile Leu His Arg Asp Leu Lys Thr  
115 120 125

Gln Asn Ile Leu Leu Asp Lys His Arg Met Val Val Lys Ile Gly Asp  
130 135 140

Phe Gly Ile Ser Lys Ile Leu Ser Ser Lys Ser Lys Ala Tyr Thr Val  
145 150 155 160

Val Gly Thr Pro Cys Tyr Ile Ser Pro Glu Leu Cys Glu Gly Lys Pro  
165 170 175

Tyr Asn Gln Lys Ser Asp Ile Trp Ala Leu Gly Cys Val Leu Tyr Glu  
180 185 190

Leu Ala Ser Leu Lys Arg Ala Phe Glu Ala Ala Asn Leu Pro Ala Leu  
195 200 205

Val Leu Lys Ile Met Ser Gly Thr Phe Ala Pro Ile Ser Asp Arg Tyr  
210 215 220

Ser Pro Glu Leu Arg Gln Leu Val Leu Ser Leu Leu Ser Leu Glu Pro  
225 230 235 240

Ala Gln Arg Pro Pro Leu Ser His Ile Met Ala Gln Pro  
245 250

<210> 150

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: S\_TKc,  
Serine/Threonine protein kinases

<400> 150

Tyr Glu Leu Leu Glu Val Leu Gly Lys Gly Ala Phe Gly Lys Val Tyr  
1 5 10 15

Leu Ala Arg Asp Lys Lys Thr Gly Lys Leu Val Ala Ile Lys Val Ile



<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pkinase,  
Protein kinase domain sequence

<400> 151

Tyr Glu Leu Gly Glu Lys Leu Gly Ser Gly Ala Phe Gly Lys Val Tyr  
1 5 10 15

Lys Gly Lys His Lys Asp Thr Gly Glu Ile Val Ala Ile Lys Ile Leu  
20 25 30

Lys Lys Arg Ser Leu Ser Glu Lys Lys Lys Arg Phe Leu Arg Glu Ile  
35 40 45

Gln Ile Leu Arg Arg Leu Ser His Pro Asn Ile Val Arg Leu Leu Gly  
50 55 60

Val Phe Glu Glu Asp Asp His Leu Tyr Leu Val Met Glu Tyr Met Glu  
65 70 75 80

Gly Gly Asp Leu Phe Asp Tyr Leu Arg Arg Asn Gly Leu Leu Leu Ser  
85 90 95

Glu Lys Glu Ala Lys Lys Ile Ala Leu Gln Ile Leu Arg Gly Leu Glu  
100 105 110

Tyr Leu His Ser Arg Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn  
115 120 125

Ile Leu Leu Asp Glu Asn Gly Thr Val Lys Ile Ala Asp Phe Gly Leu  
130 135 140

Ala Arg Lys Leu Glu Ser Ser Ser Tyr Glu Lys Leu Thr Thr Phe Val  
145 150 155 160

Gly Thr Pro Glu Tyr Met Ala Pro Glu Val Leu Glu Gly Arg Gly Tyr  
165 170 175

Ser Ser Lys Val Asp Val Trp Ser Leu Gly Val Ile Leu Tyr Glu Leu  
180 185 190

Leu Thr Gly Lys Leu Pro Phe Pro Gly Ile Asp Pro Leu Glu Glu Leu  
195 200 205

Phe Arg Ile Lys Glu Arg Pro Arg Leu Arg Leu Pro Leu Pro Pro Asn  
210 215 220

Cys Ser Glu Glu Leu Lys Asp Leu Ile Lys Lys Cys Leu Asn Lys Asp  
 225 230 235 240

Pro Glu Lys Arg Pro Thr Ala Lys Glu Ile Leu Asn His Pro  
 245 250

<210> 152

<211> 245

<212> PRT

<213> Homo sapiens

<400> 152

Arg Val Val Gly Arg Gly Ala Phe Gly Ile Val His Leu Cys Leu Arg  
 1 5 10 15

Lys Ala Asp Gln Lys Leu Val Ile Ile Lys Gln Ile Pro Val Glu Gln  
 20 25 30

Met Thr Lys Glu Glu Arg Gln Ala Ala Gln Asn Glu Cys Gln Val Leu  
 35 40 45

Lys Leu Leu Asn His Pro Asn Val Ile Glu Tyr Tyr Glu Asn Phe Leu  
 50 55 60

Glu Asp Lys Ala Leu Met Thr Ala Met Glu Tyr Ala Pro Gly Gly Thr  
 65 70 75 80

Leu Ala Glu Phe Ile Gln Lys Arg Cys Asn Ser Leu Leu Glu Glu Glu  
 85 90 95

Thr Ile Leu His Phe Phe Val Gln Ile Leu Leu Ala Leu His His Val  
 100 105 110

His Thr His Leu Ile Leu His Arg Asp Leu Lys Thr Gln Asn Ile Leu  
 115 120 125

Leu Asp Lys His Arg Met Val Val Lys Ile Gly Asp Phe Gly Ile Ser  
 130 135 140

Lys Ile Leu Ser Ser Lys Ser Lys Ala Tyr Thr Val Val Gly Thr Pro  
 145 150 155 160

Cys Tyr Ile Ser Pro Glu Leu Cys Glu Gly Lys Pro Tyr Asn Gln Lys  
 165 170 175

Ser Asp Ile Trp Ala Leu Gly Cys Val Leu Tyr Glu Leu Ala Ser Leu



	180		185		190										
Lys	Arg	Ala	Phe	Glu	Ala	Ala	Asn	Leu	Pro	Ala	Leu	Val	Leu	Lys	Ile
	195						200					205			
Met	Ser	Gly	Thr	Phe	Ala	Pro	Ile	Ser	Asp	Arg	Tyr	Ser	Pro	Glu	Leu
	210					215				220					
Arg	Gln	Leu	Val	Leu	Ser	Leu	Leu	Ser	Leu	Glu	Pro	Ala	Gln	Arg	Pro
225					230					235					240
Pro	Leu	Ser	His	Ile											
				245											

<210> 153  
 <211> 250  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: TyrKc,  
 Tyrosine kinase domain

<400> 153

Lys	Lys	Leu	Gly	Glu	Gly	Ala	Phe	Gly	Glu	Val	Tyr	Lys	Gly	Thr	Leu
1				5					10					15	
Lys	Gly	Lys	Gly	Gly	Val	Glu	Val	Glu	Val	Ala	Val	Lys	Thr	Leu	Lys
			20					25					30		
Glu	Asp	Ala	Ser	Glu	Gln	Gln	Ile	Glu	Glu	Phe	Leu	Arg	Glu	Ala	Arg
		35					40					45			
Leu	Met	Arg	Lys	Leu	Asp	His	Pro	Asn	Ile	Val	Lys	Leu	Leu	Gly	Val
	50					55					60				
Cys	Thr	Glu	Glu	Glu	Pro	Leu	Met	Ile	Val	Met	Glu	Tyr	Met	Glu	Gly
65					70					75				80	
Gly	Asp	Leu	Leu	Asp	Tyr	Leu	Arg	Lys	Asn	Arg	Pro	Lys	Glu	Leu	Ser
				85					90					95	
Leu	Ser	Asp	Leu	Leu	Ser	Phe	Ala	Leu	Gln	Ile	Ala	Arg	Gly	Met	Glu
		100						105					110		
Tyr	Leu	Glu	Ser	Lys	Asn	Phe	Val	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn
	115					120					125				

Cys Leu Val Gly Glu Asn Lys Thr Val Lys Ile Ala Asp Phe Gly Leu  
 130 135 140

Ala Arg Asp Leu Tyr Asp Asp Asp Tyr Tyr Arg Lys Lys Lys Ser Pro  
 145 150 155 160

Arg Leu Pro Ile Arg Trp Met Ala Pro Glu Ser Leu Lys Asp Gly Lys  
 165 170 175

Phe Thr Ser Lys Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu  
 180 185 190

Ile Phe Thr Leu Gly Glu Ser Pro Tyr Pro Gly Met Ser Asn Glu Glu  
 195 200 205

Val Leu Glu Tyr Leu Lys Lys Gly Tyr Arg Leu Pro Gln Pro Pro Asn  
 210 215 220

Cys Pro Asp Glu Ile Tyr Asp Leu Met Leu Gln Cys Trp Ala Glu Asp  
 225 230 235 240

Pro Glu Asp Arg Pro Thr Phe Ser Glu Leu  
 245 250

<210> 154

<211> 488

<212> PRT

<213> Mus musculus

<400> 154

Met Arg Ser Gly Ala Glu Arg Arg Gly Ser Ser Ala Ala Ala Pro Pro  
 1 5 10 15

Ser Ser Pro Pro Pro Gly Arg Ala Arg Pro Ala Gly Ser Glu Val Ser  
 20 25 30

Pro Ala Leu Pro Pro Pro Ala Ala Ser Gln Pro Arg Ala Arg Asp Ala  
 35 40 45

Gly Asp Ala Arg Ala Gln Pro Arg Pro Leu Phe Gln Trp Ser Lys Trp  
 50 55 60

Lys Lys Arg Met Ser Met Ser Ser Ile Ser Ser Gly Ser Ala Arg Arg  
 65 70 75 80

Pro Val Phe Asp Asp Lys Glu Asp Val Asn Phe Asp His Phe Gln Ile

				85				90				95			
Leu	Arg	Ala	Ile	Gly	Lys	Gly	Ser	Phe	Gly	Lys	Val	Cys	Ile	Val	Gln
100								105				110			
Lys	Arg	Asp	Thr	Glu	Lys	Met	Tyr	Ala	Met	Lys	Tyr	Met	Asn	Lys	Gln
115								120				125			
Gln	Cys	Ile	Glu	Arg	Asp	Glu	Val	Arg	Asn	Val	Phe	Arg	Glu	Leu	Glu
130								135				140			
Ile	Leu	Gln	Glu	Ile	Glu	His	Val	Phe	Leu	Val	Asn	Leu	Trp	Tyr	Ser
145								150				155			
Phe	Gln	Asp	Glu	Glu	Asp	Met	Phe	Met	Val	Val	Asp	Leu	Leu	Leu	Gly
				165								170			
Gly	Asp	Leu	Arg	Tyr	His	Leu	Gln	Gln	Asn	Val	Gln	Phe	Ser	Glu	Asp
180								185				190			
Thr	Val	Arg	Leu	Tyr	Ile	Cys	Glu	Met	Ala	Leu	Ala	Leu	Asp	Tyr	Leu
195								200				205			
Arg	Ser	Gln	His	Ile	Ile	His	Arg	Asp	Val	Lys	Pro	Asp	Asn	Ile	Leu
210								215				220			
Leu	Asp	Glu	Gln	Gly	His	Ala	His	Leu	Thr	Asp	Phe	Asn	Ile	Ala	Thr
225								230				235			
Ile	Ile	Lys	Asp	Gly	Glu	Arg	Ala	Thr	Ala	Leu	Ala	Gly	Thr	Lys	Pro
				245								250			
Tyr	Met	Ala	Pro	Glu	Ile	Phe	His	Ser	Phe	Val	Asn	Gly	Gly	Thr	Gly
260								265				270			
Tyr	Ser	Phe	Glu	Val	Asp	Trp	Trp	Ser	Val	Gly	Val	Met	Ala	Tyr	Glu
275								280				285			
Leu	Leu	Arg	Gly	Trp	Arg	Pro	Tyr	Asp	Ile	His	Ser	Ser	Asn	Ala	Val
290								295				300			
Glu	Ser	Leu	Val	Gln	Leu	Phe	Ser	Thr	Val	Ser	Val	Gln	Tyr	Val	Pro
305								310				315			
Thr	Trp	Ser	Lys	Glu	Met	Val	Ala	Leu	Leu	Arg	Lys	Leu	Leu	Thr	Val
				325								330			
Asn	Pro	Glu	His	Arg	Phe	Ser	Ser	Leu	Gln	Asp	Met	Gln	Thr	Ala	Pro

340	345	350
Ser Leu Ala His Val Leu Trp Asp Asp Leu Ser Glu Lys Lys Val Glu		
355	360	365
Pro Gly Phe Val Pro Asn Lys Gly Arg Leu His Cys Asp Pro Thr Phe		
370	375	380
Glu Leu Glu Glu Met Ile Leu Glu Ser Arg Pro Leu His Lys Lys Lys		
385	390	395
Lys Arg Leu Ala Lys Asn Lys Ser Arg Asp Ser Ser Arg Asp Ser Ser		
405	410	415
Gln Ser Glu Asn Asp Tyr Leu Gln Asp Cys Leu Asp Ala Ile Gln Gln		
420	425	430
Asp Phe Val Ile Phe Asn Arg Glu Lys Leu Lys Arg Ser Gln Glu Leu		
435	440	445
Met Ser Glu Pro Pro Pro Gly Pro Glu Thr Ser Asp Met Thr Asp Ser		
450	455	460
Thr Ala Asp Ser Glu Ala Glu Pro Thr Ala Leu Pro Met Cys Gly Ser		
465	470	475
Ile Cys Pro Ser Ser Gly Ser Ser		
485		

<210> 155

<211> 369

<212> PRT

<213> Homo sapiens

<400> 155

Met Tyr Ala Met Lys Tyr Met Asn Lys Gln Gln Cys Ile Glu Arg Asp
1 5 10 15
Glu Val Arg Asn Val Phe Arg Glu Leu Glu Ile Leu Gln Glu Ile Glu
20 25 30
His Val Phe Leu Val Asn Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp
35 40 45
Met Phe Met Val Val Asp Leu Leu Leu Gly Gly Asp Leu Arg Tyr His
50 55 60

Leu	Gln	Gln	Asn	Val	Gln	Phe	Ser	Glu	Asp	Thr	Val	Arg	Leu	Tyr	Ile	
65					70					75					80	
Cys	Glu	Met	Ala	Leu	Ala	Leu	Asp	Tyr	Leu	Arg	Gly	Gln	His	Ile	Ile	
				85					90					95		
His	Arg	Asp	Val	Lys	Pro	Asp	Asn	Ile	Leu	Leu	Asp	Glu	Arg	Gly	His	
			100					105					110			
Ala	His	Leu	Thr	Asp	Phe	Asn	Ile	Ala	Thr	Ile	Ile	Lys	Asp	Gly	Glu	
		115					120						125			
Arg	Ala	Thr	Ala	Leu	Ala	Gly	Thr	Lys	Pro	Tyr	Met	Ala	Pro	Glu	Ile	
		130				135					140					
Phe	His	Ser	Phe	Val	Asn	Gly	Gly	Thr	Gly	Tyr	Ser	Phe	Glu	Val	Asp	
145					150					155					160	
Trp	Trp	Ser	Val	Gly	Val	Met	Ala	Tyr	Glu	Leu	Leu	Arg	Gly	Trp	Arg	
			165						170					175		
Pro	Tyr	Asp	Ile	His	Ser	Ser	Asn	Ala	Val	Glu	Ser	Leu	Val	Gln	Leu	
			180					185					190			
Phe	Ser	Thr	Val	Ser	Val	Gln	Tyr	Val	Pro	Thr	Trp	Ser	Lys	Glu	Met	
		195					200					205				
Val	Ala	Leu	Leu	Arg	Lys	Leu	Leu	Thr	Val	Asn	Pro	Glu	His	Arg	Leu	
	210					215					220					
Ser	Ser	Leu	Gln	Asp	Val	Gln	Ala	Ala	Pro	Ala	Leu	Ala	Gly	Val	Leu	
225					230					235					240	
Trp	Asp	His	Leu	Ser	Glu	Lys	Arg	Val	Glu	Pro	Gly	Phe	Val	Pro	Asn	
			245						250					255		
Lys	Gly	Arg	Leu	His	Cys	Asp	Pro	Thr	Phe	Glu	Leu	Glu	Glu	Met	Ile	
			260					265					270			
Leu	Glu	Ser	Arg	Pro	Leu	His	Lys	Lys	Lys	Lys	Arg	Leu	Ala	Lys	Asn	
		275					280					285				
Lys	Ser	Arg	Asp	Asn	Ser	Arg	Asp	Ser	Ser	Gln	Ser	Glu	Asn	Asp	Tyr	
		290				295					300					
Leu	Gln	Asp	Cys	Leu	Asp	Ala	Ile	Gln	Gln	Asp	Phe	Val	Ile	Phe	Asn	
305					310					315					320	

Arg Glu Lys Leu Lys Arg Ser Gln Asp Leu Pro Arg Glu Pro Leu Pro  
 325 330 335

Ala Pro Glu Ser Arg Asp Ala Ala Glu Pro Val Glu Asp Glu Ala Glu  
 340 345 350

Arg Ser Ala Leu Pro Met Cys Gly Pro Ile Cys Pro Ser Ala Gly Ser  
 355 360 365

Gly

<210> 156

<211> 368

<212> PRT

<213> Macaca fuscata

<400> 156

Met Tyr Ala Met Lys Tyr Met Asn Lys Gln Gln Cys Ile Glu Arg Asp  
 1 5 10 15

Glu Val Arg Asn Val Phe Arg Glu Leu Gly Ile Leu Gln Glu Ile Glu  
 20 25 30

His Val Phe Leu Val Asn Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp  
 35 40 45

Met Phe Met Val Val Asp Leu Leu Leu Gly Gly Asp Leu Arg Tyr His  
 50 55 60

Leu Gln Gln Asn Val Gln Phe Ser Glu Asp Thr Val Arg Leu Tyr Ile  
 65 70 75 80

Cys Glu Met Ala Leu Ala Leu Asp Tyr Leu Cys Gly Gln His Ile Ile  
 85 90 95

His Arg Asp Val Lys Pro Asp Asn Ile Leu Leu Asp Glu Arg Gly His  
 100 105 110

Ala His Leu Thr Asp Phe Asn Ile Ala Thr Ile Ile Lys Asp Gly Glu  
 115 120 125

Arg Ala Thr Ala Leu Ala Gly Thr Lys Pro Tyr Met Ala Pro Glu Ile  
 130 135 140

Phe His Ser Phe Val Asn Gly Gly Thr Gly Tyr Ser Phe Glu Val Asp  
 145 150 155 160

Trp Trp Ser Leu Gly Val Met Ala Tyr Glu Leu Leu Arg Gly Trp Arg  
165 170 175

Pro Tyr Asp Ile His Ser Ser Asn Ala Val Glu Ser Leu Val Gln Leu  
180 185 190

Phe Ser Thr Val Ser Val Gln Tyr Val Pro Thr Trp Ser Arg Glu Met  
195 200 205

Val Ala Leu Leu Arg Lys Leu Leu Thr Val Asn Pro Glu His Arg Phe  
210 215 220

Ser Ser Leu Gln Asp Val Gln Ala Ala Pro Ala Leu Ala Gly Val Leu  
225 230 235 240

Trp Gly His Leu Ser Glu Lys Arg Val Glu Pro Asp Phe Val Pro Asn  
245 250 255

Lys Gly Arg Leu His Cys Asp Pro Thr Phe Glu Leu Glu Glu Met Ile  
260 265 270

Leu Glu Ser Arg Pro Leu His Lys Lys Lys Lys Arg Leu Ala Lys Asn  
275 280 285

Lys Ser Arg Asp Asn Ser Arg Asp Ser Ser Gln Ser Glu Asn Asp Tyr  
290 295 300

Leu Gln Asp Cys Leu Asp Ala Ile Gln Gln Asp Phe Val Ile Phe Asn  
305 310 315 320

Arg Glu Lys Leu Lys Arg Ser Gln Asp Leu Pro Ser Glu Pro Leu Pro  
325 330 335

Ala Pro Glu Pro Arg Asp Ala Ala Glu Pro Val Glu Asp Glu Glu Gln  
340 345 350

Ser Ala Leu Pro Met Cys Gly Pro Ile Cys Pro Ser Ala Gly Ser Gly  
355 360 365

<210> 157

<211> 414

<212> PRT

<213> Homo sapiens

<400> 157

Met	Gly	Gly	Asn	His	Ser	His	Lys	Pro	Pro	Val	Phe	Asp	Glu	Asn	Glu	
1					5				10					15		
Glu	Val	Asn	Phe	Asp	His	Phe	Gln	Ile	Leu	Arg	Ala	Ile	Gly	Lys	Gly	
		20						25					30			
Ser	Phe	Gly	Lys	Val	Cys	Ile	Val	Gln	Lys	Arg	Asp	Thr	Lys	Lys	Met	
		35					40					45				
Tyr	Ala	Met	Lys	Tyr	Met	Asn	Lys	Gln	Lys	Cys	Ile	Glu	Arg	Asp	Glu	
	50					55					60					
Val	Arg	Asn	Val	Phe	Arg	Glu	Leu	Gln	Ile	Met	Gln	Gly	Leu	Glu	His	
65					70					75					80	
Pro	Phe	Leu	Val	Asn	Leu	Trp	Tyr	Ser	Phe	Gln	Asp	Glu	Glu	Asp	Met	
				85					90						95	
Phe	Met	Val	Val	Asp	Leu	Leu	Leu	Gly	Gly	Asp	Leu	Arg	Tyr	His	Leu	
		100						105					110			
Gln	Gln	Asn	Val	His	Phe	Thr	Glu	Gly	Thr	Val	Lys	Leu	Tyr	Ile	Cys	
		115					120					125				
Glu	Leu	Ala	Leu	Ala	Leu	Glu	Tyr	Leu	Gln	Arg	Tyr	His	Ile	Ile	His	
	130					135					140					
Arg	Asp	Ile	Lys	Pro	Asp	Asn	Ile	Leu	Leu	Asp	Glu	His	Gly	His	Val	
145					150					155					160	
His	Ile	Thr	Asp	Phe	Asn	Ile	Ala	Thr	Val	Val	Lys	Gly	Ala	Glu	Arg	
			165					170						175		
Ala	Ser	Ser	Met	Ala	Gly	Thr	Lys	Pro	Tyr	Met	Ala	Pro	Glu	Val	Phe	
			180					185					190			
Gln	Val	Tyr	Met	Asp	Arg	Gly	Pro	Gly	Tyr	Ser	Tyr	Pro	Val	Asp	Trp	
		195					200					205				
Trp	Ser	Leu	Gly	Ile	Thr	Ala	Tyr	Glu	Leu	Leu	Arg	Gly	Trp	Arg	Pro	
	210					215					220					
Tyr	Glu	Ile	His	Ser	Val	Thr	Pro	Ile	Asp	Glu	Ile	Leu	Asn	Met	Phe	
225					230				235					240		
Lys	Val	Glu	Arg	Val	His	Tyr	Ser	Ser	Thr	Trp	Cys	Lys	Gly	Met	Val	





Tyr	Ala	Met	Lys	Tyr	Met	Asn	Lys	Gln	Lys	Cys	Val	Glu	Arg	Asp	Glu		
50						55					60						
Val	Arg	Asn	Val	Phe	Arg	Glu	Leu	Gln	Ile	Met	Gln	Gly	Leu	Glu	His		
65					70					75					80		
Pro	Phe	Leu	Val	Asn	Leu	Trp	Tyr	Ser	Phe	Gln	Asp	Glu	Glu	Asp	Met		
				85					90					95			
Phe	Met	Val	Val	Asp	Leu	Leu	Leu	Gly	Gly	Asp	Leu	Arg	Tyr	His	Leu		
			100					105						110			
Gln	Gln	Asn	Val	His	Phe	Thr	Glu	Gly	Thr	Val	Lys	Leu	Tyr	Ile	Cys		
		115					120					125					
Glu	Leu	Ala	Leu	Ala	Leu	Glu	Tyr	Leu	Gln	Arg	Tyr	His	Ile	Ile	His		
	130					135					140						
Arg	Asp	Ile	Lys	Pro	Asp	Asn	Ile	Leu	Leu	Asp	Glu	His	Gly	His	Val		
145					150					155					160		
His	Ile	Thr	Asp	Phe	Asn	Ile	Ala	Thr	Val	Leu	Lys	Gly	Ser	Glu	Lys		
				165					170					175			
Ala	Ser	Ser	Met	Ala	Gly	Thr	Lys	Pro	Tyr	Met	Ala	Pro	Glu	Val	Phe		
			180					185					190				
Gln	Val	Tyr	Val	Asp	Gly	Gly	Pro	Gly	Tyr	Ser	Tyr	Pro	Val	Asp	Trp		
	195						200					205					
Trp	Ser	Leu	Gly	Val	Thr	Ala	Tyr	Glu	Leu	Leu	Arg	Gly	Trp	Arg	Pro		
	210					215					220						
Tyr	Glu	Ile	His	Ser	Ala	Thr	Pro	Ile	Asp	Glu	Ile	Leu	Asn	Met	Phe		
225					230					235					240		
Lys	Val	Glu	Arg	Val	His	Tyr	Ser	Ser	Thr	Trp	Cys	Glu	Gly	Met	Val		
				245					250					255			
Ser	Leu	Leu	Lys	Lys	Leu	Leu	Thr	Lys	Asp	Pro	Glu	Ser	Arg	Leu	Ser		
			260					265					270				
Ser	Leu	Arg	Asp	Ile	Gln	Ser	Met	Thr	Tyr	Leu	Ala	Asp	Met	Asn	Trp		
	275						280					285					
Asp	Ala	Val	Phe	Glu	Lys	Ala	Leu	Met	Pro	Gly	Phe	Val	Pro	Asn	Lys		
	290					295					300						

Gly Arg Leu Asn Cys Asp Pro Thr Phe Glu Leu Glu Glu Met Ile Leu  
 305 310 315 320

Glu Ser Lys Pro Leu His Lys Lys Lys Lys Arg Leu Ala Lys His Arg  
 325 330 335

Ser Arg Asp Ser Thr Lys Asp Ser Cys Pro Leu Asn Gly His Leu Gln  
 340 345 350

Gln Cys Leu Glu Thr Val Arg Lys Glu Phe Ile Ile Phe Asn Arg Glu  
 355 360 365

Lys Leu Arg Arg Gln Gln Gly His Asp Gly Gln Leu Ser Asp Leu Asp  
 370 375 380

Gly Arg Ile Gly Ser Gln Thr Ser Ser Lys Leu Gln Asp Gly Arg Asn  
 385 390 395 400

Asn Asn Ile Leu Thr His Thr Cys Pro Arg Gly Cys Ser Ser  
 405 410

<210> 159

<211> 258

<212> PRT

<213> Homo sapiens

<400> 159

Phe Gln Ile Leu Arg Ala Ile Gly Lys Gly Ser Phe Gly Lys Val Val  
 1 5 10 15

Cys Ile Val Gln Lys Arg Asp Thr Glu Lys Met Tyr Ala Met Lys Tyr  
 20 25 30

Met Asn Lys Gln Gln Cys Ile Glu Arg Asp Glu Val Arg Asn Val Phe  
 35 40 45

Arg Glu Leu Glu Ile Leu Gln Glu Ile Glu His Val Phe Leu Val Asn  
 50 55 60

Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp Met Phe Met Val Val Asp  
 65 70 75 80

Leu Leu Leu Gly Gly Asp Leu Arg Tyr His Leu Gln Gln Asn Val Gln  
 85 90 95

Phe Ser Glu Asp Thr Val Arg Leu Tyr Ile Cys Glu Met Ala Leu Ala  
 100 105 110

Leu Asp Tyr Leu Arg Gly Gln His Ile Ile His Arg Asp Val Lys Pro  
 115 120 125  
 Asp Asn Ile Leu Leu Asp Glu Arg Gly His Ala His Leu Thr Asp Phe  
 130 135 140  
 Asn Ile Ala Thr Ile Ile Lys Asp Gly Glu Arg Ala Thr Ala Leu Ala  
 145 150 155 160  
 Gly Thr Lys Pro Tyr Met Ala Pro Glu Ile Phe His Ser Phe Val Asn  
 165 170 175  
 Gly Gly Thr Gly Tyr Ser Phe Glu Val Asp Trp Trp Ser Val Gly Val  
 180 185 190  
 Met Ala Tyr Glu Leu Leu Arg Gly Trp Arg Pro Tyr Asp Ile His Ser  
 195 200 205  
 Ser Asn Ala Val Glu Ser Leu Val Gln Leu Phe Ser Thr Val Ser Val  
 210 215 220  
 Gln Tyr Val Pro Thr Trp Ser Lys Glu Met Val Gly Leu Leu Arg Lys  
 225 230 235 240  
 Val Leu Leu Thr Val Asn Pro Glu His Arg Leu Ser Ser Leu Gln Asp  
 245 250 255  
 Val Gln

<210> 160

<211> 252

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: S\_TKc,  
 Serine/Threonine protein kinases domain sequence

<400> 160

Tyr Glu Leu Leu Glu Val Leu Gly Lys Gly Ala Phe Gly Lys Val Tyr  
 1 5 10 15

Leu Ala Arg Asp Lys Lys Thr Gly Lys Leu Val Ala Ile Lys Val Ile  
 20 25 30

Lys Lys Glu Lys Leu Lys Lys Lys Lys Arg Glu Arg Ile Leu Arg Glu  
           35                          40                          45  
 Ile Lys Ile Leu Lys Lys Leu Asp His Pro Asn Ile Val Lys Leu Tyr  
           50                          55                          60  
 Asp Val Phe Glu Asp Asp Asp Lys Leu Tyr Leu Val Met Glu Tyr Cys  
           65                          70                          75                          80  
 Glu Gly Gly Asp Leu Phe Asp Leu Leu Lys Lys Arg Gly Arg Leu Ser  
                           85                          90                          95  
 Glu Asp Glu Ala Arg Phe Tyr Ala Arg Gln Ile Leu Ser Ala Leu Glu  
                           100                          105                          110  
 Tyr Leu His Ser Gln Gly Ile Ile His Arg Asp Leu Lys Pro Glu Asn  
           115                          120                          125  
 Ile Leu Leu Asp Ser Asp Gly His Val Lys Leu Ala Asp Phe Gly Leu  
           130                          135                          140  
 Ala Lys Gln Leu Asp Ser Gly Gly Thr Leu Leu Thr Thr Phe Val Gly  
           145                          150                          155                          160  
 Thr Pro Glu Tyr Met Ala Pro Glu Val Leu Leu Gly Lys Gly Tyr Gly  
                           165                          170                          175  
 Lys Ala Val Asp Ile Trp Ser Leu Gly Val Ile Leu Tyr Glu Leu Leu  
                           180                          185                          190  
 Thr Gly Lys Pro Pro Phe Pro Gly Asp Asp Gln Leu Leu Ala Leu Phe  
           195                          200                          205  
 Lys Lys Ile Gly Lys Pro Pro Pro Pro Phe Pro Pro Pro Glu Trp Lys  
           210                          215                          220  
 Ile Ser Pro Glu Ala Lys Asp Leu Ile Lys Lys Leu Leu Val Lys Asp  
           225                          230                          235                          240  
 Pro Glu Lys Arg Leu Thr Ala Glu Glu Ala Leu Glu  
                           245                          250

<210> 161

<211> 255

<212> PRT

<213> Homo sapiens

<400> 161

Phe Gln Ile Leu Arg Ala Ile Gly Lys Gly Ser Phe Gly Lys Val Val  
1 5 10 15

Cys Ile Val Gln Lys Arg Asp Thr Glu Lys Met Tyr Ala Met Lys Tyr  
20 25 30

Met Asn Lys Gln Gln Cys Ile Glu Arg Asp Glu Val Arg Asn Val Phe  
35 40 45

Arg Glu Leu Glu Ile Leu Gln Glu Ile Glu His Val Phe Leu Val Asn  
50 55 60

Leu Trp Tyr Ser Phe Gln Asp Glu Glu Asp Met Phe Met Val Val Asp  
65 70 75 80

Leu Leu Leu Gly Gly Asp Leu Arg Tyr His Leu Gln Gln Asn Val Gln  
85 90 95

Phe Ser Glu Asp Thr Val Arg Leu Tyr Ile Cys Glu Met Ala Leu Ala  
100 105 110

Leu Asp Tyr Leu Arg Gly Gln His Ile Ile His Arg Asp Val Lys Pro  
115 120 125

Asp Asn Ile Leu Leu Asp Glu Arg Gly His Ala His Leu Thr Asp Phe  
130 135 140

Asn Ile Ala Thr Ile Ile Lys Asp Gly Glu Arg Ala Thr Ala Leu Ala  
145 150 155 160

Gly Thr Lys Pro Tyr Met Ala Pro Glu Ile Phe His Ser Phe Val Asn  
165 170 175

Gly Gly Thr Gly Tyr Ser Phe Glu Val Asp Trp Trp Ser Val Gly Val  
180 185 190

Met Ala Tyr Glu Leu Leu Arg Gly Trp Arg Pro Tyr Asp Ile His Ser  
195 200 205

Ser Asn Ala Val Glu Ser Leu Val Gln Leu Phe Ser Thr Val Ser Val  
210 215 220

Gln Tyr Val Pro Thr Trp Ser Lys Glu Met Val Gly Leu Leu Arg Lys  
225 230 235 240

Val Leu Leu Thr Val Asn Pro Glu His Arg Leu Ser Ser Leu Gln  
245 250 255

<210> 162

<211> 249

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pkinase,  
Protein kinase domain

<400> 162

Tyr Glu Leu Gly Glu Lys Leu Gly Ser Gly Ala Phe Gly Lys Val Tyr  
1 5 10 15

Lys Gly Lys His Lys Asp Thr Gly Glu Ile Val Ala Ile Lys Ile Leu  
20 25 30

Lys Lys Arg Ser Leu Ser Glu Lys Lys Lys Arg Phe Leu Arg Glu Ile  
35 40 45

Gln Ile Leu Arg Arg Leu Ser His Pro Asn Ile Val Arg Leu Leu Gly  
50 55 60

Val Phe Glu Glu Asp Asp His Leu Tyr Leu Val Met Glu Tyr Met Glu  
65 70 75 80

Gly Gly Asp Leu Phe Asp Tyr Leu Arg Arg Asn Gly Leu Leu Leu Ser  
85 90 95

Glu Lys Glu Ala Lys Lys Ile Ala Leu Gln Ile Leu Arg Gly Leu Glu  
100 105 110

Tyr Leu His Ser Arg Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn  
115 120 125

Ile Leu Leu Asp Glu Asn Gly Thr Val Lys Ile Ala Asp Phe Gly Leu  
130 135 140

Ala Arg Lys Leu Glu Ser Ser Ser Tyr Glu Lys Leu Thr Thr Phe Val  
145 150 155 160

Gly Thr Pro Glu Tyr Met Ala Pro Glu Val Leu Glu Gly Arg Gly Tyr  
165 170 175

Ser Ser Lys Val Asp Val Trp Ser Leu Gly Val Ile Leu Tyr Glu Leu  
180 185 190

Leu Thr Gly Lys Leu Pro Phe Pro Gly Ile Asp Pro Leu Glu Glu Leu  
195 200 205

Phe Arg Ile Lys Glu Arg Pro Arg Leu Arg Leu Pro Leu Pro Pro Asn  
210 215 220

Cys Ser Glu Glu Leu Lys Asp Leu Ile Lys Lys Cys Leu Asn Lys Asp  
225 230 235 240

Pro Glu Lys Arg Pro Thr Ala Lys Glu  
245

<210> 163

<211> 215

<212> PRT

<213> Homo sapiens

<400> 163

Ile Leu Arg Ala Ile Gly Lys Gly Ser Phe Gly Lys Val Val Cys Ile  
1 5 10 15

Val Gln Lys Arg Asp Thr Glu Lys Met Tyr Ala Met Lys Tyr Met Asn  
20 25 30

Lys Gln Gln Cys Ile Glu Arg Asp Glu Val Arg Asn Val Phe Arg Glu  
35 40 45

Leu Glu Ile Leu Gln Glu Ile Glu His Val Phe Leu Val Asn Leu Trp  
50 55 60

Tyr Ser Phe Gln Asp Glu Glu Asp Met Phe Met Val Val Asp Leu Leu  
65 70 75 80

Leu Gly Gly Asp Leu Arg Tyr His Leu Gln Gln Asn Val Gln Phe Ser  
85 90 95

Glu Asp Thr Val Arg Leu Tyr Ile Cys Glu Met Ala Leu Ala Leu Asp  
100 105 110

Tyr Leu Arg Gly Gln His Ile Ile His Arg Asp Val Lys Pro Asp Asn  
115 120 125

Ile Leu Leu Asp Glu Arg Gly His Ala His Leu Thr Asp Phe Asn Ile  
130 135 140

Ala Thr Ile Ile Lys Asp Gly Glu Arg Ala Thr Ala Leu Ala Gly Thr  
145 150 155 160



Lys Pro Tyr Met Ala Pro Glu Ile Phe His Ser Phe Val Asn Gly Gly  
165 170 175

Thr Gly Tyr Ser Phe Glu Val Asp Trp Trp Ser Val Gly Val Met Ala  
180 185 190

Tyr Glu Leu Leu Arg Gly Trp Arg Pro Tyr Asp Ile His Ser Ser Asn  
195 200 205

Ala Val Glu Ser Leu Val Gln  
210 215

<210> 164

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TyrKc,  
Tyrosine kinase domain

<400> 164

Leu Gly Lys Lys Leu Gly Glu Gly Ala Phe Gly Glu Val Tyr Lys Gly  
1 5 10 15

Thr Leu Lys Gly Lys Gly Gly Val Glu Val Glu Val Ala Val Lys Thr  
20 25 30

Leu Lys Glu Asp Ala Ser Glu Gln Gln Ile Glu Glu Phe Leu Arg Glu  
35 40 45

Ala Arg Leu Met Arg Lys Leu Asp His Pro Asn Ile Val Lys Leu Leu  
50 55 60

Gly Val Cys Thr Glu Glu Glu Pro Leu Met Ile Val Met Glu Tyr Met  
65 70 75 80

Glu Gly Gly Asp Leu Leu Asp Tyr Leu Arg Lys Asn Arg Pro Lys Glu  
85 90 95

Leu Ser Leu Ser Asp Leu Leu Ser Phe Ala Leu Gln Ile Ala Arg Gly  
100 105 110

Met Glu Tyr Leu Glu Ser Lys Asn Phe Val His Arg Asp Leu Ala Ala  
115 120 125

Arg Asn Cys Leu Val Gly Glu Asn Lys Thr Val Lys Ile Ala Asp Phe  
130 135 140

Gly Leu Ala Arg Asp Leu Tyr Asp Asp Asp Tyr Tyr Arg Lys Lys Lys  
145 150 155 160

Ser Pro Arg Leu Pro Ile Arg Trp Met Ala Pro Glu Ser Leu Lys Asp  
165 170 175

Gly Lys Phe Thr Ser Lys Ser Asp Val Trp Ser Phe Gly Val Leu Leu  
180 185 190

Trp Glu Ile Phe Thr Leu Gly Glu Ser Pro Tyr Pro Gly Met Ser Asn  
195 200 205

Glu Glu Val Leu Glu Tyr Leu Lys  
210 215

<210> 165

<211> 187

<212> PRT

<213> Homo sapiens

<400> 165

Met Gln Cys Leu Leu Leu Thr Leu Ser Met Ala Leu Val Cys Ala Ile  
1 5 10 15

Gln Ala Arg Asp Ile Pro Gln Thr Lys Gln Asp Val Glu Leu Pro Lys  
20 25 30

Leu Ala Gly Thr Trp Tyr Ser Met Ala Met Val Ala Ser Asp Phe Ser  
35 40 45

Leu Leu Glu Thr Val Glu Ala Pro Leu Arg Val Asn Ile Thr Ser Leu  
50 55 60

Trp Pro Thr Pro Glu Gly Asn Leu Glu Ile Ile Leu His Arg Trp Glu  
65 70 75 80

His His Arg Cys Val Glu Arg Thr Val Leu Ala Gln Lys Thr Glu Asp  
85 90 95

Pro Ala Val Phe Met Val Asp Arg Arg Ile Cys Arg Ala Ala Val Val  
100 105 110

Ser Gly Gln Gln Pro Ser Gln Arg Trp Arg Leu Ser Val Lys Glu Arg  
115 120 125

Ser Arg Lys Glu Gly Gly Arg Leu Pro Arg Ser Arg Asp Lys Lys Asp  
 130 135 140

Leu Cys Val Gly His Arg Leu Asp Asp Arg Ser Tyr Val Phe Phe Cys  
 145 150 155 160

Met Gly Thr Thr Thr Pro Ser Ala Asp His His Thr Met Cys Gln Tyr  
 165 170 175

Leu Gly Met Thr Gln Gly Pro Pro Gly Phe Ile  
 180 185

<210> 166

<211> 186

<212> PRT

<213> PAPIO CYNOCEPHALUS

<400> 166

Met Gln Cys Leu Leu Leu Thr Leu Gly Val Ala Leu Ile Cys Gly Val  
 1 5 10 15

Trp Ala Ile Asn Ser Pro Gln Thr Met Gln Asp Val Glu Leu Pro Lys  
 20 25 30

Leu Ala Gly Thr Trp His Ser Met Ala Met Ala Ala Ser Asp Phe Ser  
 35 40 45

Leu Leu Glu Thr Lys Glu Ala Pro Leu Arg Ile Tyr Ile Ser Ser Leu  
 50 55 60

Gln Pro Thr Pro Glu Gly Asn Leu Glu Ile Val Leu Arg Arg Trp Ser  
 65 70 75 80

Gln Lys Gln Ser Pro Phe Arg Asp Ser Asn Gln Cys Ile Glu Glu Lys  
 85 90 95

Ile Ile Ala Glu Lys Thr Glu Asn Pro Ile Glu Phe Lys Ile Asn Tyr  
 100 105 110

Leu Asp Glu Asn Arg Ile Tyr Leu Phe Asn Thr Asp Gly Ser Lys Tyr  
 115 120 125

Leu Phe Leu Cys Leu Glu Ser Thr Arg Arg Gln Asn Leu Ala Cys Gln  
 130 135 140

Tyr Leu Ala Arg Thr Leu Glu Val Asp Asp Lys Val Met Ala Glu Phe

145		150		155		160
Ile Ser Phe Leu Lys Thr Leu Pro Val His Met Gln Ile Phe Leu Asp						
	165		170		175	
Met Thr Gln Ala Glu Glu Gln Cys Arg Val						
	180		185			
<210> 167						
<211> 180						
<212> PRT						
<213> Homo sapiens						
<400> 167						
Met Leu Cys Leu Leu Leu Thr Leu Gly Val Ala Leu Val Cys Gly Val						
1	5		10		15	
Pro Ala Met Asp Ile Pro Gln Thr Lys Gln Asp Leu Glu Leu Pro Lys						
	20		25		30	
Leu Ala Gly Thr Trp His Ser Met Ala Met Ala Thr Asn Asn Ile Ser						
	35		40		45	
Leu Met Ala Thr Leu Lys Ala Pro Leu Arg Val His Ile Thr Ser Leu						
	50		55		60	
Leu Pro Thr Pro Glu Asp Asn Leu Glu Ile Val Leu His Arg Trp Glu						
	65		70		75	80
Asn Asn Ser Cys Val Glu Lys Lys Val Leu Gly Glu Lys Thr Glu Asn						
	85		90		95	
Pro Lys Lys Phe Lys Ile Asn Tyr Thr Val Ala Asn Glu Ala Thr Leu						
	100		105		110	
Leu Asp Thr Asp Tyr Asp Asn Phe Leu Phe Leu Cys Leu Gln Asp Thr						
	115		120		125	
Thr Thr Pro Ile Gln Ser Met Met Cys Gln Tyr Leu Ala Arg Val Leu						
	130		135		140	
Val Glu Asp Asp Glu Ile Met Gln Gly Phe Ile Arg Ala Phe Arg Pro						
145	150		155		160	
Leu Pro Arg His Leu Trp Tyr Leu Leu Asp Leu Lys Gln Met Glu Glu						
	165		170		175	

Pro Cys Arg Phe  
180

<210> 168  
<211> 188  
<212> PRT  
<213> Homo sapiens

<400> 168

Ser	Glu	Pro	Pro	Thr	Ala	Ala	Ala	Met	Leu	Cys	Leu	Leu	Leu	Thr	Leu
1				5					10					15	

Gly	Val	Ala	Leu	Val	Cys	Gly	Val	Pro	Ala	Met	Asp	Ile	Pro	Gln	Thr
			20					25					30		

Lys	Gln	Asp	Leu	Glu	Leu	Pro	Lys	Leu	Ala	Gly	Thr	Trp	His	Ser	Met
		35					40					45			

Ala	Met	Ala	Thr	Asn	Asn	Ile	Ser	Leu	Met	Ala	Thr	Leu	Lys	Ala	Pro
	50					55					60				

Leu	Arg	Val	His	Ile	Thr	Ser	Leu	Leu	Pro	Thr	Pro	Glu	Asp	Asn	Leu
65				70						75					80

Glu	Ile	Val	Leu	His	Arg	Trp	Glu	Asn	Asn	Ser	Cys	Val	Glu	Lys	Lys
				85					90					95	

Val	Leu	Gly	Glu	Lys	Thr	Glu	Asn	Pro	Lys	Lys	Phe	Lys	Ile	Asn	Tyr
		100						105					110		

Thr	Val	Ala	Asn	Glu	Ala	Thr	Leu	Leu	Asp	Thr	Asp	Tyr	Asp	Asn	Phe
		115					120					125			

Leu	Phe	Leu	Cys	Leu	Gln	Asp	Thr	Thr	Thr	Pro	Ile	Gln	Ser	Met	Met
	130					135					140				

Cys	Gln	Tyr	Leu	Ala	Arg	Val	Leu	Val	Glu	Asp	Asp	Glu	Ile	Met	Gln
145					150					155					160

Gly	Phe	Ile	Arg	Ala	Phe	Arg	Pro	Leu	Pro	Arg	His	Leu	Trp	Tyr	Leu
				165					170					175	

Leu	Asp	Leu	Lys	Gln	Met	Glu	Glu	Pro	Cys	Arg	Phe
			180					185			

<210> 169

<211> 163  
 <212> PRT  
 <213> Felis catus

<400> 169

Ala Thr Leu Pro Pro Thr Met Glu Asp Leu Asp Ile Arg Gln Val Ala  
 1 5 10 15

Gly Thr Trp His Ser Met Ala Met Ala Ala Ser Asp Ile Ser Leu Leu  
 20 25 30

Asp Ser Glu Thr Ala Pro Leu Arg Val Tyr Val Gln Glu Leu Arg Pro  
 35 40 45

Thr Pro Arg Asp Asn Leu Glu Ile Ile Leu Arg Lys Arg Glu Asn His  
 50 55 60

Ala Cys Ile Glu Gly Asn Ile Met Ala Gln Arg Thr Glu Asp Pro Ala  
 65 70 75 80

Val Phe Met Val Asp Tyr Gln Gly Glu Lys Lys Ile Ser Val Leu Asp  
 85 90 95

Thr Asp Tyr Thr His Tyr Met Phe Phe Cys Met Glu Ala Pro Ala Pro  
 100 105 110

Gly Thr Glu Asn Gly Met Met Cys Gln Tyr Leu Ala Arg Thr Leu Lys  
 115 120 125

Ala Asp Asn Glu Val Met Glu Lys Phe Asp Arg Ala Leu Gln Thr Leu  
 130 135 140

Pro Val His Ile Arg Ile Ile Leu Asp Leu Thr Gln Gly Lys Glu Gln  
 145 150 155 160

Cys Arg Val

<210> 170  
 <211> 145  
 <212> PRT  
 <213> Homo sapiens

<400> 170

Lys Phe Ala Gly Lys Trp Tyr Leu Val Ala Ser Ala Asn Phe Asp Pro  
 1 5 10 15

Glu Leu Lys Glu Glu Leu Gly Val Leu Glu Ala Thr Arg Lys Glu Ile  
20 25 30

Thr Pro Leu Lys Glu Gly Asn Leu Glu Ile Val Phe Asp Gly Asp Lys  
35 40 45

Asn Gly Ile Cys Glu Glu Thr Phe Gly Lys Leu Glu Lys Thr Lys Lys  
50 55 60

Leu Gly Val Glu Phe Asp Tyr Tyr Thr Gly Asp Asn Arg Phe Val Val  
65 70 75 80

Leu Asp Thr Asp Tyr Asp Asn Tyr Leu Leu Val Cys Val Gln Lys Gly  
85 90 95

Asp Gly Asn Glu Thr Ser Arg Thr Ala Glu Leu Tyr Gly Arg Thr Pro  
100 105 110

Glu Leu Ser Pro Glu Ala Leu Glu Leu Phe Glu Thr Ala Thr Lys Glu  
115 120 125

Leu Gly Ile Pro Glu Asp Asn Val Val Cys Thr Arg Gln Thr Glu Arg  
130 135 140

Cys  
145

<210> 171

<211> 145

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: lipocalin  
domain sequence

<400> 171

Lys Phe Ala Gly Lys Trp Tyr Leu Val Ala Ser Ala Asn Phe Asp Pro  
1 5 10 15

Glu Leu Lys Glu Glu Leu Gly Val Leu Glu Ala Thr Arg Lys Glu Ile  
20 25 30

Thr Pro Leu Lys Glu Gly Asn Leu Glu Ile Val Phe Asp Gly Asp Lys  
35 40 45

Asn Gly Ile Cys Glu Glu Thr Phe Gly Lys Leu Glu Lys Thr Lys Lys

50	55	60
Leu Gly Val Glu Phe Asp Tyr Tyr Thr Gly Asp Asn Arg Phe Val Val		
65	70	75 80
Leu Asp Thr Asp Tyr Asp Asn Tyr Leu Leu Val Cys Val Gln Lys Gly		
	85	90 95
Asp Gly Asn Glu Thr Ser Arg Thr Ala Glu Leu Tyr Gly Arg Thr Pro		
	100	105 110
Glu Leu Ser Pro Glu Ala Leu Glu Leu Phe Glu Thr Ala Thr Lys Glu		
	115	120 125
Leu Gly Ile Pro Glu Asp Asn Val Val Cys Thr Arg Gln Thr Glu Arg		
	130	135 140

Cys  
145

<210> 172  
<211> 1327  
<212> PRT  
<213> Mus musculus

<400> 172

Met Glu Ala Pro Leu Gln Thr Gly Met Val Leu Gly Val Met Ile Gly		
1	5	10 15
Ala Gly Val Ala Val Leu Val Thr Ala Val Leu Ile Leu Leu Val Val		
	20	25 30
Arg Arg Leu Arg Val Gln Lys Thr Pro Ala Pro Glu Gly Pro Arg Tyr		
	35	40 45
Arg Phe Arg Lys Arg Asp Lys Val Leu Phe Tyr Gly Arg Lys Ile Met		
	50	55 60
Arg Lys Val Ser Gln Ser Thr Ser Ser Leu Val Asp Thr Ser Val Ser		
	65	70 75 80
Thr Thr Ser Arg Pro Arg Met Lys Lys Lys Leu Lys Met Leu Asn Ile		
	85	90 95
Ala Lys Lys Ile Leu Arg Ile Gln Lys Glu Thr Pro Thr Leu Gln Arg		
	100	105 110



Lys	Glu	Pro	Pro	Pro	Ser	Val	Leu	Glu	Ala	Asp	Leu	Thr	Glu	Gly	Asp	115	120	125
Leu	Ala	Asn	Ser	His	Leu	Pro	Ser	Glu	Val	Leu	Tyr	Met	Leu	Lys	Asn	130	135	140
Val	Arg	Val	Leu	Gly	His	Phe	Glu	Lys	Pro	Leu	Phe	Leu	Glu	Leu	Cys	145	150	155
Arg	His	Met	Val	Phe	Gln	Arg	Leu	Gly	Gln	Gly	Asp	Tyr	Val	Phe	Arg	165	170	175
Pro	Gly	Gln	Pro	Asp	Ala	Ser	Ile	Tyr	Val	Val	Gln	Asp	Gly	Leu	Leu	180	185	190
Glu	Leu	Cys	Leu	Pro	Gly	Pro	Asp	Gly	Lys	Glu	Cys	Val	Val	Lys	Lys	195	200	205
Val	Val	Pro	Gly	Asp	Ser	Val	Asn	Ser	Leu	Leu	Ser	Ile	Leu	Asp	Val	210	215	220
Ile	Thr	Gly	His	Gln	His	Pro	Gln	Arg	Thr	Val	Ser	Ala	Arg	Ala	Ala	225	230	235
Arg	Asp	Ser	Thr	Val	Leu	Arg	Leu	Pro	Val	Glu	Ala	Phe	Ser	Ala	Val	245	250	255
Phe	Thr	Lys	Tyr	Pro	Glu	Ser	Leu	Val	Arg	Val	Val	Gln	Ile	Ile	Met	260	265	270
Val	Arg	Leu	Gln	Arg	Val	Thr	Phe	Leu	Ala	Leu	His	Asn	Tyr	Leu	Gly	275	280	285
Leu	Thr	Asn	Glu	Leu	Phe	Ser	His	Glu	Ile	Gln	Pro	Leu	Arg	Leu	Phe	290	295	300
Pro	Ser	Pro	Gly	Leu	Pro	Thr	Arg	Thr	Ser	Pro	Val	Arg	Gly	Ser	Lys	305	310	315
Arg	Val	Val	Ser	Thr	Ser	Gly	Thr	Glu	Asp	Thr	Ser	Lys	Glu	Thr	Ser	325	330	335
Gly	Arg	Pro	Leu	Asp	Ser	Ile	Gly	Ala	Pro	Leu	Pro	Gly	Pro	Ala	Gly	340	345	350
Asp	Pro	Val	Lys	Pro	Thr	Ser	Leu	Glu	Ala	Pro	Pro	Ala	Pro	Leu	Leu	355	360	365

Ser Arg Cys Ile Ser Met Pro Val Asp Ile Ser Gly Leu Gln Gly Gly  
 370 375 380  
 Pro Arg Ser Asp Phe Asp Met Ala Tyr Glu Arg Gly Arg Ile Ser Val  
 385 390 395 400  
 Ser Leu Gln Glu Glu Ala Ser Gly Gly Pro Gln Thr Ala Ser Pro Arg  
 405 410 415  
 Thr Pro Thr Gln Glu Leu Arg Glu Gln Pro Ala Gly Ala Cys Glu Tyr  
 420 425 430  
 Ser Tyr Cys Glu Asp Glu Ser Ala Thr Gly Gly Cys Pro Phe Gly Pro  
 435 440 445  
 Tyr Gln Gly Arg Gln Thr Ser Ser Ile Phe Glu Ala Ala Lys Arg Glu  
 450 455 460  
 Leu Ala Lys Leu Met Arg Ile Glu Asp Pro Ser Leu Leu Asn Ser Arg  
 465 470 475 480  
 Val Leu Leu His His Ala Lys Ala Gly Thr Ile Ile Ala Arg Gln Gly  
 485 490 495  
 Asp Gln Asp Val Ser Leu His Phe Val Leu Trp Gly Cys Leu His Val  
 500 505 510  
 Tyr Gln Arg Met Ile Asp Lys Ala Glu Glu Val Cys Leu Phe Val Ala  
 515 520 525  
 Gln Pro Gly Glu Leu Val Gly Gln Leu Ala Val Leu Thr Gly Glu Pro  
 530 535 540  
 Leu Ile Phe Thr Leu Arg Ala Gln Arg Asp Cys Thr Phe Leu Arg Ile  
 545 550 555 560  
 Ser Lys Ser His Phe Tyr Glu Ile Met Arg Ala Gln Pro Ser Val Val  
 565 570 575  
 Leu Ser Ala Ala His Thr Val Ala Ala Arg Met Ser Pro Phe Val Arg  
 580 585 590  
 Gln Met Asp Phe Ala Ile Asp Trp Thr Ala Val Glu Ala Gly Arg Ala  
 595 600 605  
 Leu Tyr Arg Gln Gly Asp Arg Ser Asp Cys Thr Tyr Ile Val Leu Asn  
 610 615 620

Gly	Arg	Leu	Arg	Ser	Val	Ile	Gln	Arg	Gly	Ser	Gly	Lys	Lys	Glu	Leu	
625					630					635					640	
Val	Gly	Glu	Tyr	Gly	Arg	Gly	Asp	Leu	Ile	Gly	Val	Val	Glu	Ala	Leu	
				645					650					655		
Thr	Arg	Gln	Pro	Arg	Ala	Thr	Thr	Val	His	Ala	Val	Arg	Asp	Thr	Glu	
			660					665					670			
Leu	Ala	Lys	Leu	Pro	Glu	Gly	Thr	Leu	Gly	His	Ile	Lys	Arg	Arg	Tyr	
		675					680					685				
Pro	Gln	Val	Val	Thr	Arg	Leu	Ile	His	Leu	Leu	Ser	Gln	Lys	Ile	Leu	
		690				695					700					
Gly	Asn	Leu	Gln	Gln	Leu	Gln	Gly	Pro	Phe	Pro	Gly	Ser	Gly	Leu	Ser	
705					710					715					720	
Val	Pro	Gln	His	Ser	Glu	Leu	Thr	Asn	Pro	Ala	Ser	Asn	Leu	Ser	Thr	
				725				730						735		
Val	Ala	Ile	Leu	Pro	Val	Cys	Ala	Glu	Val	Pro	Met	Met	Ala	Phe	Thr	
			740					745					750			
Leu	Glu	Leu	Gln	His	Ala	Leu	Gln	Ala	Ile	Gly	Pro	Thr	Leu	Leu	Leu	
		755					760					765				
Asn	Ser	Asp	Val	Ile	Arg	Ala	Leu	Leu	Gly	Ala	Ser	Ala	Leu	Asp	Ser	
		770				775					780					
Ile	Gln	Glu	Phe	Arg	Leu	Ser	Gly	Trp	Leu	Ala	Gln	Gln	Glu	Asp	Ala	
785					790				795					800		
His	Arg	Ile	Val	Leu	Tyr	Gln	Thr	Asp	Thr	Ser	Leu	Thr	Pro	Trp	Thr	
				805				810						815		
Val	Arg	Cys	Leu	Arg	Gln	Ala	Asp	Cys	Ile	Leu	Ile	Val	Gly	Leu	Gly	
			820					825					830			
Asp	Gln	Glu	Pro	Thr	Val	Gly	Gln	Leu	Glu	Gln	Met	Leu	Glu	Asn	Thr	
		835					840					845				
Ala	Val	Arg	Ala	Leu	Lys	Gln	Leu	Val	Leu	Leu	His	Arg	Glu	Glu	Gly	
		850				855					860					
Pro	Gly	Pro	Thr	Arg	Thr	Val	Glu	Trp	Leu	Asn	Met	Arg	Ser	Trp	Cys	
865					870					875					880	

Ser Gly His Leu His Leu Arg Cys Pro Arg Arg Leu Phe Ser Arg Arg  
 885 890 895

Ser Pro Ala Lys Leu His Glu Leu Tyr Glu Lys Val Phe Ser Arg Arg  
 900 905 910

Ala Asp Arg His Ser Asp Phe Ser Arg Leu Ala Arg Val Leu Thr Gly  
 915 920 925

Asn Thr Ile Ala Leu Val Leu Gly Gly Gly Gly Ala Arg Gly Cys Ser  
 930 935 940

His Ile Gly Val Leu Lys Ala Leu Glu Glu Ala Gly Val Pro Val Asp  
 945 950 955 960

Leu Val Gly Gly Thr Ser Ile Gly Ser Phe Ile Gly Ala Leu Tyr Ala  
 965 970 975

Glu Glu Arg Ser Ala Ser Arg Thr Lys Gln Arg Ala Arg Glu Trp Ala  
 980 985 990

Lys Ser Met Thr Ser Val Leu Glu Pro Val Leu Asp Leu Thr Tyr Pro  
 995 1000 1005

Val Thr Ser Met Phe Thr Gly Ser Ala Phe Asn Arg Ser Ile His Arg  
 1010 1015 1020

Val Phe Gln Asp Lys Gln Ile Glu Asp Leu Trp Leu Pro Tyr Phe Asn  
 1025 1030 1035 1040

Val Thr Thr Asp Ile Thr Ala Ser Ala Met Arg Val His Lys Asp Gly  
 1045 1050 1055

Ser Leu Trp Arg Tyr Val Arg Ala Ser Met Thr Leu Ser Gly Tyr Leu  
 1060 1065 1070

Pro Pro Leu Cys Asp Pro Lys Asp Gly His Leu Leu Met Asp Gly Gly  
 1075 1080 1085

Tyr Ile Asn Asn Leu Pro Ala Asp Ile Ala Arg Ser Met Gly Ala Lys  
 1090 1095 1100

Thr Val Ile Ala Ile Asp Val Gly Ser Gln Asp Glu Thr Asp Leu Ser  
 1105 1110 1115 1120

Thr Tyr Gly Asp Ser Leu Ser Gly Trp Trp Leu Leu Trp Lys Arg Leu  
 1125 1130 1135

Asn Pro Trp Ala Asp Lys Val Lys Val Pro Asp Met Ala Glu Ile Gln  
1140 1145 1150

Ser Arg Leu Ala Tyr Val Ser Cys Val Arg Gln Leu Glu Val Val Lys  
1155 1160 1165

Ser Ser Ser Tyr Cys Glu Tyr Leu Arg Pro Ser Ile Asp Cys Phe Lys  
1170 1175 1180

Thr Met Asp Phe Gly Lys Phe Asp Gln Ile Tyr Asp Val Gly Tyr Gln  
1185 1190 1195 1200

Tyr Gly Lys Ala Val Phe Gly Gly Trp Thr Arg Gly Glu Val Ile Glu  
1205 1210 1215

Lys Met Leu Thr Asp Arg Arg Ser Thr Asp Leu Asn Glu Ser Arg Arg  
1220 1225 1230

Ala Asp Ile Leu Ala Phe Pro Ser Ser Gly Phe Thr Asp Leu Ala Glu  
1235 1240 1245

Ile Val Ser Arg Ile Glu Pro Pro Thr Ser Tyr Val Ser Asp Gly Cys  
1250 1255 1260

Ala Asp Gly Glu Glu Ser Asp Cys Leu Thr Glu Tyr Glu Glu Asp Ala  
1265 1270 1275 1280

Gly Pro Asp Cys Ser Arg Asp Glu Gly Gly Ser Pro Glu Gly Ala Ser  
1285 1290 1295

Pro Ser Thr Ala Ser Glu Val Glu Glu Glu Lys Ser Thr Leu Arg Gln  
1300 1305 1310

Arg Arg Phe Leu Pro Gln Glu Thr Pro Ser Ser Val Ala Asp Ala  
1315 1320 1325

<210> 173

<211> 702

<212> PRT

<213> Homo sapiens

<400> 173

Met Leu Ser Gly Arg Leu Arg Ser Val Ile Arg Lys Asp Asp Gly Lys  
1 5 10 15

Lys Arg Leu Ala Gly Glu Tyr Gly Arg Gly Asp Leu Val Gly Val Val  
20 25 30

Glu	Thr	Leu	Thr	His	Gln	Ala	Arg	Ala	Thr	Thr	Val	His	Ala	Val	Arg	35	40	45	
Asp	Ser	Glu	Leu	Ala	Lys	Leu	Pro	Ala	Gly	Ala	Leu	Thr	Ser	Ile	Lys	50	55	60	
Arg	Arg	Tyr	Pro	Gln	Val	Val	Thr	Arg	Leu	Ile	His	Leu	Leu	Gly	Glu	65	70	75	80
Lys	Ile	Leu	Gly	Ser	Leu	Gln	Gln	Gly	Pro	Val	Thr	Gly	His	Gln	Leu	85	90	95	
Gly	Leu	Pro	Thr	Glu	Gly	Ser	Lys	Trp	Asp	Leu	Gly	Asn	Pro	Ala	Val	100	105	110	
Asn	Leu	Ser	Thr	Val	Ala	Val	Met	Pro	Val	Ser	Glu	Glu	Val	Pro	Leu	115	120	125	
Thr	Ala	Phe	Ala	Leu	Glu	Leu	Glu	His	Ala	Leu	Ser	Ala	Ile	Gly	Pro	130	135	140	
Thr	Leu	Leu	Leu	Thr	Ser	Asp	Asn	Ile	Lys	Arg	Arg	Leu	Gly	Ser	Ala	145	150	155	160
Ala	Leu	Asp	Ser	Val	His	Glu	Tyr	Arg	Leu	Ser	Ser	Trp	Leu	Gly	Gln	165	170	175	
Gln	Glu	Asp	Thr	His	Arg	Ile	Val	Leu	Tyr	Gln	Ala	Asp	Gly	Thr	Leu	180	185	190	
Thr	Pro	Trp	Thr	Gln	Arg	Cys	Val	Arg	Gln	Ala	Asp	Cys	Ile	Leu	Ile	195	200	205	
Val	Gly	Leu	Gly	Asp	Gln	Glu	Pro	Thr	Val	Gly	Glu	Leu	Glu	Arg	Met	210	215	220	
Leu	Glu	Ser	Thr	Ala	Val	Arg	Ala	Gln	Lys	Gln	Leu	Ile	Leu	Leu	His	225	230	235	240
Arg	Glu	Glu	Gly	Pro	Ala	Pro	Ala	Arg	Thr	Val	Glu	Trp	Leu	Asn	Met	245	250	255	
Arg	Ser	Ser	Cys	Ser	Gly	His	Leu	His	Leu	Cys	Cys	Pro	Arg	Arg	Val	260	265	270	
Phe	Ser	Arg	Arg	Ser	Leu	Pro	Lys	Leu	Val	Glu	Met	Tyr	Lys	His	Val	275	280	285	

Phe	Gln	Arg	Pro	Pro	Asp	Arg	His	Ser	Asp	Phe	Ser	Arg	Leu	Ala	Arg	290	295	300	
Val	Leu	Thr	Gly	Asn	Ala	Ile	Ala	Leu	Val	Leu	Gly	Gly	Gly	Gly	Ala	305	310	315	320
Arg	Gly	Cys	Ala	Gln	Val	Gly	Val	Leu	Lys	Ala	Leu	Ala	Glu	Cys	Gly	325	330	335	
Ile	Pro	Val	Asp	Met	Val	Gly	Gly	Thr	Ser	Ile	Gly	Ala	Phe	Val	Gly	340	345	350	
Ala	Leu	Tyr	Ser	Glu	Glu	Arg	Asn	Tyr	Ser	Gln	Met	Arg	Ile	Arg	Ala	355	360	365	
Lys	Gln	Trp	Ala	Glu	Gly	Met	Thr	Ser	Leu	Met	Lys	Ala	Ala	Leu	Asp	370	375	380	
Leu	Thr	Tyr	Pro	Ile	Thr	Ser	Met	Phe	Ser	Gly	Ala	Gly	Phe	Asn	Ser	385	390	395	400
Ser	Ile	Phe	Ser	Val	Phe	Lys	Asp	Gln	Gln	Ile	Glu	Asp	Leu	Trp	Ile	405	410	415	
Pro	Tyr	Phe	Ala	Ile	Thr	Thr	Asp	Ile	Thr	Ala	Ser	Ala	Met	Arg	Val	420	425	430	
His	Thr	Asp	Gly	Ser	Leu	Trp	Arg	Tyr	Val	Arg	Ala	Ser	Met	Ser	Leu	435	440	445	
Ser	Gly	Tyr	Met	Pro	Pro	Leu	Cys	Asp	Pro	Lys	Asp	Gly	His	Leu	Leu	450	455	460	
Met	Asp	Gly	Gly	Tyr	Ile	Asn	Asn	Leu	Pro	Ala	Asp	Val	Ala	Arg	Ser	465	470	475	480
Met	Gly	Ala	Lys	Val	Val	Ile	Ala	Ile	Asp	Val	Gly	Ser	Arg	Asp	Glu	485	490	495	
Thr	Asp	Leu	Thr	Asn	Tyr	Gly	Asp	Ala	Leu	Ser	Gly	Trp	Trp	Leu	Leu	500	505	510	
Trp	Lys	Arg	Trp	Asn	Pro	Leu	Ala	Thr	Lys	Val	Lys	Val	Leu	Asn	Met	515	520	525	
Ala	Glu	Ile	Gln	Thr	Arg	Leu	Ala	Tyr	Val	Cys	Cys	Val	Arg	Gln	Leu	530	535	540	

Glu Val Val Lys Ser Ser Asp Tyr Cys Glu Tyr Leu Arg Pro Pro Ile  
 545 550 555 560

Asp Ser Tyr Ser Thr Leu Asp Phe Gly Lys Phe Asn Glu Ile Cys Glu  
 565 570 575

Val Gly Tyr Gln His Gly Arg Thr Val Phe Asp Ile Trp Gly Arg Ser  
 580 585 590

Gly Val Leu Glu Lys Met Leu Arg Asp Gln Gln Gly Pro Ser Lys Lys  
 595 600 605

Pro Ala Ser Ala Val Leu Thr Cys Pro Asn Ala Ser Phe Thr Asp Leu  
 610 615 620

Ala Glu Ile Val Ser Arg Ile Glu Pro Ala Lys Pro Ala Met Val Asp  
 625 630 635 640

Asp Glu Ser Asp Tyr Gln Thr Glu Tyr Glu Glu Glu Leu Leu Asp Val  
 645 650 655

Pro Arg Asp Ala Tyr Ala Asp Phe Gln Ser Thr Ser Ala Gln Gln Gly  
 660 665 670

Ser Asp Leu Glu Asp Glu Ser Ser Leu Arg His Arg His Pro Ser Leu  
 675 680 685

Ala Phe Pro Lys Leu Ser Glu Gly Ser Ser Asp Gln Asp Gly  
 690 695 700

<210> 174

<211> 1425

<212> PRT

<213> *Drosophila melanogaster*

<400> 174

Met Asp Val Leu Glu Met Leu Arg Ala Ser Ala Ser Gly Ser Tyr Asn  
 1 5 10 15

Thr Thr Phe Ser Asp Ala Trp Cys Gln Tyr Val Ser Lys Gln Ile Thr  
 20 25 30

Ala Thr Val Tyr Met Tyr Phe Ala Leu Val Met Met Ser Leu Leu Phe  
 35 40 45

Ile Ala Trp Phe Leu Tyr Phe Lys Arg Met Ala Arg Leu Arg Leu Arg



50		55		60															
Asp	Glu	Ile	Ala	Arg	Ser	Ile	Ser	Thr	Val	Thr	Asn	Ser	Ser	Gly	Asp				
65					70					75					80				
Met	Arg	Gly	Leu	Arg	Phe	Arg	Lys	Arg	Asp	Lys	Met	Leu	Phe	Tyr	Gly				
				85					90					95					
Arg	Arg	Met	Leu	Arg	Lys	Met	Lys	Asn	Val	Ser	Gly	Gln	Met	Tyr	Ser				
			100					105					110						
Ser	Gly	Lys	Gly	Tyr	Lys	Arg	Arg	Ala	Val	Met	Arg	Phe	Ala	Arg	Arg				
		115					120					125							
Ile	Leu	Gln	Leu	Arg	Arg	Asp	Asn	Met	Pro	Leu	Glu	Met	Arg	Thr	Val				
	130					135					140								
Glu	Pro	Pro	Ala	Glu	Tyr	Leu	Glu	Glu	Thr	Ile	Glu	Gly	Ser	Asp	Arg				
145					150					155					160				
Val	Pro	Pro	Asp	Ala	Leu	Tyr	Met	Leu	Gln	Ser	Ile	Arg	Ile	Phe	Gly				
				165					170					175					
His	Phe	Glu	Lys	Pro	Val	Phe	Leu	Arg	Leu	Cys	Lys	His	Thr	Gln	Leu				
			180					185					190						
Leu	Glu	Leu	Met	Ala	Gly	Asp	Tyr	Leu	Phe	Lys	Ile	Thr	Asp	Pro	Asp				
	195						200					205							
Asp	Ser	Val	Tyr	Ile	Val	Gln	Ser	Gly	Met	Ile	Asn	Val	Tyr	Ile	Ser				
	210					215					220								
Asn	Ala	Asp	Gly	Ser	Thr	Leu	Ser	Leu	Lys	Thr	Val	Arg	Lys	Gly	Glu				
225					230					235					240				
Ser	Val	Thr	Ser	Leu	Leu	Ser	Phe	Ile	Asp	Val	Leu	Ser	Gly	Asn	Pro				
				245					250					255					
Ser	Tyr	Tyr	Lys	Thr	Val	Thr	Ala	Lys	Ala	Ile	Glu	Lys	Ser	Val	Val				
			260					265					270						
Ile	Arg	Leu	Pro	Met	Gln	Ala	Phe	Glu	Glu	Val	Phe	Gln	Asp	Asn	Pro				
	275						280					285							
Asp	Val	Met	Ile	Arg	Val	Ile	Gln	Val	Ile	Met	Ile	Arg	Leu	Gln	Arg				
	290					295					300								
Val	Leu	Phe	Thr	Ala	Leu	Arg	Asn	Tyr	Leu	Gly	Leu	Asn	Ala	Glu	Leu				

305		310		315		320									
Val	Gln	Asn	His	Met	Arg	Tyr	Lys	Ser	Val	Ser	Thr	Met	Ser	Gly	Pro
				325					330					335	
Ile	Asn	Ser	Gln	Thr	Ser	Gln	Ser	Ser	Arg	Gln	Ala	Pro	Asn	Gly	Pro
			340					345					350		
Pro	Met	Val	Ile	Ser	Gln	Met	Asn	Leu	Met	Gln	Ser	Ala	Val	Ser	Gly
		355					360					365			
Thr	Gly	Ser	Ser	Gly	Val	Ser	Val	Thr	Val	Thr	Arg	Pro	Pro	Ser	Ser
	370					375					380				
Pro	Ser	Arg	His	Ser	Arg	Glu	Glu	His	Thr	Leu	Ser	Asp	Pro	Asn	Pro
385					390					395					400
Asn	Pro	Asp	Gly	Ser	Phe	His	Gly	Thr	Thr	Asn	Leu	Phe	Thr	Glu	Val
			405					410					415		
His	Gly	Asp	Ala	Pro	Asn	Ala	Asp	Leu	Phe	His	Gln	Gln	Gln	Gln	Gln
		420					425					430			
His	Ser	Val	Gly	Asn	Leu	Ser	Thr	Arg	Arg	Ser	Ser	Ile	Thr	Leu	Met
		435					440					445			
Ala	Pro	Asp	Pro	Ser	His	Ser	Cys	Leu	Gln	Thr	Pro	Gly	Val	Thr	Thr
	450					455					460				
Ser	Ile	Asp	Met	Arg	Leu	Val	Gln	Ser	Ser	Ala	Val	Asp	Ser	Leu	Arg
465					470					475				480	
Lys	Glu	Leu	Gly	Leu	Ser	Glu	Glu	Asp	Ser	His	Ile	Ile	Glu	Pro	Phe
			485					490					495		
Val	Glu	Leu	Arg	Glu	Leu	Glu	Pro	Asn	Val	Thr	Leu	Ile	Thr	Glu	Gly
		500						505					510		
Asn	Ala	Asp	Asp	Val	Cys	Val	Trp	Phe	Val	Met	Thr	Gly	Thr	Leu	Ala
		515					520					525			
Val	Tyr	Gln	Ser	Asn	Gln	Asp	Ala	Thr	Arg	Ala	Lys	Gln	Asp	Lys	Ser
	530					535					540				
Asp	Met	Leu	Ile	His	Phe	Val	His	Pro	Gly	Glu	Ile	Val	Gly	Gly	Leu
545					550					555					560
Ala	Met	Leu	Thr	Gly	Glu	Ala	Ser	Ala	Tyr	Thr	Ile	Arg	Ser	Arg	Ser

			565				570				575					
Ile	Thr	Arg	Ile	Ala	Phe	Ile	Arg	Arg	Ala	Ala	Ile	Tyr	Gln	Ile	Met	
			580				585				590					
Arg	Gln	Arg	Pro	Arg	Ile	Val	Leu	Asp	Leu	Gly	Asn	Gly	Val	Val	Arg	
			595				600				605					
Arg	Leu	Ser	Pro	Leu	Val	Arg	Gln	Cys	Asp	Tyr	Ala	Leu	Asp	Trp	Ile	
			610				615				620					
Phe	Leu	Glu	Ser	Gly	Arg	Ala	Val	Tyr	Arg	Gln	Asp	Glu	Ser	Ser	Asp	
625							630				635				640	
Ser	Thr	Tyr	Ile	Val	Leu	Ser	Gly	Arg	Met	Arg	Ser	Val	Ile	Thr	His	
			645				650				655					
Pro	Gly	Gly	Lys	Lys	Glu	Ile	Val	Gly	Glu	Tyr	Gly	Lys	Gly	Asp	Leu	
			660				665				670					
Val	Gly	Ile	Val	Glu	Met	Ile	Thr	Glu	Thr	Ser	Arg	Thr	Thr	Thr	Val	
			675				680				685					
Met	Ala	Val	Arg	Asp	Ser	Glu	Leu	Ala	Lys	Leu	Pro	Glu	Gly	Leu	Phe	
690							695				700					
Asn	Ala	Ile	Lys	Leu	Arg	Tyr	Pro	Ile	Val	Val	Thr	Lys	Leu	Ile	Ser	
705							710				715				720	
Phe	Leu	Ser	His	Arg	Phe	Leu	Gly	Ser	Met	Gln	Thr	Arg	Ser	Gly	Ser	
			725				730				735					
Gly	Ala	Pro	Gly	Ala	Pro	Val	Glu	Ala	Asn	Pro	Val	Thr	His	Lys	Tyr	
			740				745				750					
Ser	Thr	Val	Ala	Leu	Val	Pro	Ile	Thr	Asp	Glu	Val	Pro	Met	Thr	Pro	
			755				760				765					
Phe	Thr	Tyr	Glu	Leu	Tyr	His	Ser	Leu	Cys	Ala	Ile	Gly	Pro	Val	Leu	
770							775				780					
His	Leu	Thr	Ser	Asp	Val	Val	Arg	Lys	Gln	Leu	Gly	Ser	Asn	Ile	Phe	
785							790				795				800	
Glu	Ala	Ala	Asn	Glu	Tyr	Arg	Leu	Thr	Ser	Trp	Leu	Ala	Gln	Gln	Glu	
			805				810				815					
Asp	Arg	Asn	Ile	Ile	Thr	Leu	Tyr	Gln	Cys	Asp	Ser	Ser	Leu	Ser	Ala	

820	825	830
Trp Thr Gln Arg Cys Met Arg Gln Ala Asp Val Ile Leu Ile Val Gly		
835	840	845
Leu Gly Asp Arg Ser His Leu Val Gly Lys Phe Glu Arg Glu Ile Asp		
850	855	860
Arg Leu Ala Met Arg Thr Gln Lys Glu Leu Val Leu Leu Tyr Pro Glu		
865	870	875 880
Ala Ser Asn Ala Lys Pro Ala Asn Thr Leu Ser Trp Leu Asn Ala Arg		
885	890	895
Pro Trp Val Thr Lys His His His Val Leu Cys Val Lys Arg Ile Phe		
900	905	910
Thr Arg Lys Ser Gln Tyr Arg Ile Asn Asp Leu Tyr Ser Arg Val Leu		
915	920	925
Leu Ser Glu Pro Asn Met His Ser Asp Phe Ser Arg Leu Ala Arg Trp		
930	935	940
Leu Thr Gly Asn Ser Ile Gly Leu Val Leu Gly Gly Gly Gly Ala Arg		
945	950	955 960
Gly Ala Ala His Ile Gly Met Leu Lys Ala Ile Gln Glu Ala Gly Ile		
965	970	975
Pro Val Asp Met Val Gly Gly Val Ser Ile Gly Ala Leu Met Gly Ala		
980	985	990
Leu Trp Cys Ser Glu Arg Asn Ile Thr Thr Val Thr Gln Lys Ala Arg		
995	1000	1005
Glu Trp Ser Lys Lys Met Thr Lys Trp Phe Leu Gln Leu Leu Asp Leu		
1010	1015	1020
Thr Tyr Pro Ile Thr Ser Met Phe Ser Gly Arg Glu Phe Asn Lys Thr		
1025	1030	1035 1040
Ile His Asp Thr Phe Gly Asp Val Ser Ile Glu Asp Leu Trp Ile Pro		
1045	1050	1055
Tyr Phe Thr Leu Thr Thr Asp Ile Thr Ala Ser Cys His Arg Ile His		
1060	1065	1070
Thr Asn Gly Ser Leu Trp Arg Tyr Val Arg Ser Ser Met Ser Leu Ser		

1075	1080	1085
Gly Tyr Met Pro Pro Leu Cys Asp Pro Lys Asp Gly His Leu Leu Leu		
1090	1095	1100
Asp Gly Gly Tyr Val Asn Asn Leu Pro Ala Asp Val Met His Asn Leu		
1105	1110	1115 1120
Gly Ala Ala His Ile Ile Ala Ile Asp Val Gly Ser Gln Asp Asp Thr		
1125	1130	1135
Asp Leu Thr Asn Tyr Gly Asp Asp Leu Ser Gly Trp Trp Leu Leu Tyr		
1140	1145	1150
Lys Lys Trp Asn Pro Phe Thr Ser Pro Val Lys Val Pro Asp Leu Pro		
1155	1160	1165
Asp Ile Gln Ser Arg Leu Ala Tyr Val Ser Cys Val Arg Gln Leu Glu		
1170	1175	1180
Glu Val Lys Asn Ser Asp Tyr Cys Glu Tyr Ile Arg Pro Pro Ile Asp		
1185	1190	1195 1200
Lys Tyr Lys Thr Leu Ala Phe Gly Ser Phe Asp Glu Ile Arg Asp Val		
1205	1210	1215
Gly Tyr Val Phe Gly Lys Asn Tyr Phe Glu Ser Met Ala Lys Ala Gly		
1220	1225	1230
Arg Leu Gly Arg Phe Asn Gln Trp Phe Asn Lys Glu Pro Pro Lys Arg		
1235	1240	1245
Val Asn His Ala Ser Leu Asn Glu Tyr Thr Phe Ile Asp Leu Ala Gln		
1250	1255	1260
Ile Val Cys Arg Leu Pro Glu Thr Tyr Ala Val Asn Thr Ala Glu Leu		
1265	1270	1275 1280
Phe Ser Glu Asp Glu Asp Cys Asp Gly Tyr Ile Ser Glu Pro Thr Thr		
1285	1290	1295
Leu Asn Thr Asp Arg Arg Arg Ile Gln Val Ser Arg Ala Gly Asn Ser		
1300	1305	1310
Leu Ser Phe Ser Glu Thr Glu Met Asp Ser Asp Val Glu Leu Asp Leu		
1315	1320	1325
Lys Leu Glu Arg Lys Thr Asp Lys Ser Thr Gln Ser Ser Pro Pro Ser		

1330                      1335                      1340  
 Asn Ser Arg Ser Asp Met Arg Gly Lys Glu Glu Ala Arg His Met Ser  
 1345                      1350                      1355                      1360  
 Asn Trp His Trp Gly Val Lys His Lys Asp Glu Thr Gly Ser Gly Ala  
                     1365                      1370                      1375  
 Asn Glu Ala Thr Lys Thr Gln Thr Gly Gln Glu Gln Glu Leu Gln Gln  
                     1380                      1385                      1390  
 Glu Gln Gln Asp Gln Gly Ala Thr Ala Glu Gln Leu Val Asp Lys Asp  
                     1395                      1400                      1405  
 Lys Glu Glu Asn Lys Glu Asn Arg Ser Ser Pro Asn Asn Glu Thr Lys  
                     1410                      1415                      1420

Asn  
 1425

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 <211> 1389  
 <212> PRT  
 <213> *Drosophila melanogaster*

<400> 175  
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 Leu Tyr Phe Lys Arg Met Ala Arg Leu Arg Leu Arg Asp Glu Ile Ala  
                     20                      25                      30  
 Arg Ser Ile Ser Thr Val Thr Asn Ser Ser Gly Asp Met Arg Gly Leu  
                     35                      40                      45  
 Arg Phe Arg Lys Arg Asp Lys Met Leu Phe Tyr Gly Arg Arg Met Leu  
                     50                      55                      60  
 Arg Lys Met Lys Asn Val Ser Gly Gln Met Tyr Ser Ser Gly Lys Gly  
                     65                      70                      75                      80  
 Tyr Lys Arg Arg Ala Val Met Arg Phe Ala Arg Arg Ile Leu Gln Leu  
                     85                      90                      95  
 Arg Arg Asp Asn Met Pro Leu Glu Met Arg Thr Val Glu Pro Pro Ala  
                     100                      105                      110

Glu Tyr Leu Glu Glu Thr Ile Glu Gly Ser Asp Arg Val Pro Pro Asp  
 115 120 125

Ala Leu Tyr Met Leu Gln Ser Ile Arg Ile Phe Gly His Phe Glu Lys  
 130 135 140

Pro Val Phe Leu Arg Leu Cys Lys His Thr Gln Leu Leu Glu Leu Met  
 145 150 155 160

Ala Gly Asp Tyr Leu Phe Lys Ile Thr Asp Pro Asp Asp Ser Val Tyr  
 165 170 175

Ile Val Gln Ser Gly Met Ile Asn Val Tyr Ile Ser Asn Ala Asp Gly  
 180 185 190

Ser Thr Leu Ser Leu Lys Thr Val Arg Lys Gly Glu Ser Val Thr Ser  
 195 200 205

Leu Leu Ser Phe Ile Asp Val Leu Ser Gly Asn Pro Ser Tyr Tyr Lys  
 210 215 220

Thr Val Thr Ala Lys Ala Ile Glu Lys Ser Val Val Ile Arg Leu Pro  
 225 230 235 240

Met Gln Ala Phe Glu Glu Val Phe Gln Asp Asn Pro Asp Val Met Ile  
 245 250 255

Arg Val Ile Gln Val Ile Met Ile Arg Leu Gln Arg Val Leu Phe Thr  
 260 265 270

Ala Leu Arg Asn Tyr Leu Gly Leu Asn Ala Glu Leu Val Gln Asn His  
 275 280 285

Met Arg Tyr Lys Ser Val Ser Thr Met Ser Gly Pro Ile Asn Ser Gln  
 290 295 300

Thr Ser Gln Ser Ser Arg Gln Ala Pro Asn Gly Pro Pro Met Val Ile  
 305 310 315 320

Ser Gln Met Asn Leu Met Gln Ser Ala Val Ser Gly Thr Gly Ser Ser  
 325 330 335

Gly Val Ser Val Thr Val Thr Arg Pro Pro Ser Ser Pro Ser Arg His  
 340 345 350

Ser Arg Glu Glu His Thr Leu Ser Asp Pro Asn Pro Asn Pro Asp Gly  
 355 360 365

Ser Phe His Gly Thr Thr Asn Leu Phe Thr Glu Val His Gly Asp Ala  
 370 375 380

Pro Asn Ala Asp Leu Phe His Gln Gln Gln Gln Gln His Ser Val Gly  
 385 390 395 400

Asn Leu Ser Thr Arg Arg Ser Ser Ile Thr Leu Met Ala Pro Asp Gly  
 405 410 415

Ser His Ser Cys Leu Gln Thr Pro Gly Val Thr Thr Ser Ile Asp Met  
 420 425 430

Arg Leu Val Gln Ser Ser Ala Val Asp Ser Leu Arg Lys Glu Leu Gly  
 435 440 445

Leu Ser Glu Glu Asp Ser His Ile Ile Glu Pro Phe Val Glu Leu Arg  
 450 455 460

Glu Leu Glu Pro Asn Val Thr Leu Ile Thr Glu Gly Asn Ala Asp Asp  
 465 470 475 480

Val Cys Val Trp Phe Val Met Thr Gly Thr Leu Ala Val Tyr Gln Ser  
 485 490 495

Asn Gln Asp Ala Thr Arg Ala Lys Gln Asp Lys Ser Asp Met Leu Ile  
 500 505 510

His Phe Val His Pro Gly Glu Ile Val Gly Gly Leu Ala Met Leu Thr  
 515 520 525

Gly Glu Ala Ser Ala Tyr Thr Ile Arg Ser Arg Ser Ile Thr Arg Ile  
 530 535 540

Ala Phe Ile Arg Arg Ala Ala Ile Tyr Gln Ile Met Arg Gln Arg Pro  
 545 550 555 560

Arg Ile Val Leu Asp Leu Gly Asn Gly Val Val Arg Arg Leu Ser Pro  
 565 570 575

Leu Val Arg Gln Cys Asp Tyr Ala Leu Asp Trp Ile Phe Leu Glu Ser  
 580 585 590

Gly Arg Ala Val Tyr Arg Gln Asp Glu Ser Ser Asp Ser Thr Tyr Ile  
 595 600 605

Val Leu Ser Gly Arg Met Arg Ser Val Ile Thr His Pro Gly Gly Lys  
 610 615 620



Lys Glu Ile Val Gly Glu Tyr Gly Lys Gly Asp Leu Val Gly Ile Val  
 625 630 635 640  
 Glu Met Ile Thr Glu Thr Ser Arg Thr Thr Thr Val Met Ala Val Arg  
 645 650 655  
 Asp Ser Glu Leu Ala Lys Leu Pro Glu Gly Leu Phe Asn Ala Ile Lys  
 660 665 670  
 Leu Arg Tyr Pro Ile Val Val Thr Lys Leu Ile Ser Phe Leu Ser His  
 675 680 685  
 Arg Phe Leu Gly Ser Met Gln Thr Arg Ser Gly Ser Gly Ala Pro Gly  
 690 695 700  
 Ala Pro Val Glu Ala Asn Pro Val Thr His Lys Tyr Ser Thr Val Ala  
 705 710 715 720  
 Leu Val Pro Ile Thr Asp Glu Val Pro Met Thr Pro Phe Thr Tyr Glu  
 725 730 735  
 Leu Tyr His Ser Leu Cys Ala Ile Gly Pro Val Leu Arg Leu Thr Ser  
 740 745 750  
 Asp Val Val Arg Lys Gln Leu Gly Ser Asn Ile Phe Glu Ala Ala Asn  
 755 760 765  
 Glu Tyr Arg Leu Thr Ser Trp Leu Ala Gln Gln Glu Asp Arg Asn Ile  
 770 775 780  
 Ile Thr Leu Tyr Gln Cys Asp Ser Ser Leu Ser Ala Trp Thr Gln Arg  
 785 790 795 800  
 Cys Met Arg Gln Ala Asp Val Ile Leu Ile Val Gly Leu Gly Asp Arg  
 805 810 815  
 Ser His Leu Val Gly Lys Phe Glu Arg Glu Ile Asp Arg Leu Ala Met  
 820 825 830  
 Arg Thr Gln Lys Glu Leu Val Leu Leu Tyr Pro Glu Ala Ser Asn Ala  
 835 840 845  
 Lys Pro Ala Asn Thr Leu Ser Trp Leu Asn Ala Arg Pro Trp Val Thr  
 850 855 860  
 Lys His His His Val Leu Cys Val Lys Arg Ile Phe Thr Arg Lys Ser  
 865 870 875 880

Gln Tyr Arg Ile Asn Asp Leu Tyr Ser Arg Val Leu Leu Ser Glu Pro  
 885 890 895  
 Asn Met His Ser Asp Phe Ser Arg Leu Ala Arg Trp Leu Thr Gly Asn  
 900 905 910  
 Ser Ile Gly Leu Val Leu Gly Gly Gly Gly Ala Arg Gly Ala Ala His  
 915 920 925  
 Ile Gly Met Leu Lys Ala Ile Gln Glu Ala Gly Ile Pro Val Asp Met  
 930 935 940  
 Val Gly Gly Val Ser Ile Gly Ala Leu Met Gly Ala Leu Trp Cys Ser  
 945 950 955 960  
 Glu Arg Asn Ile Thr Thr Val Thr Gln Lys Ala Arg Glu Trp Ser Lys  
 965 970 975  
 Lys Met Thr Lys Trp Phe Leu Gln Leu Leu Asp Leu Thr Tyr Pro Ile  
 980 985 990  
 Thr Ser Met Phe Ser Gly Arg Glu Phe Asn Lys Thr Ile His Asp Thr  
 995 1000 1005  
 Phe Gly Asp Val Ser Ile Glu Asp Leu Trp Ile Pro Tyr Phe Thr Leu  
 1010 1015 1020  
 Thr Thr Asp Ile Thr Ala Ser Cys His Arg Ile His Thr Asn Gly Ser  
 1025 1030 1035 1040  
 Leu Trp Arg Tyr Val Arg Ser Ser Met Ser Leu Ser Gly Tyr Met Pro  
 1045 1050 1055  
 Pro Leu Cys Asp Pro Lys Asp Gly His Leu Leu Leu Asp Gly Gly Tyr  
 1060 1065 1070  
 Val Asn Asn Leu Pro Ala Asp Val Met His Asn Leu Gly Ala Ala His  
 1075 1080 1085  
 Ile Ile Ala Ile Asp Val Gly Ser Gln Asp Asp Thr Asp Leu Thr Asn  
 1090 1095 1100  
 Tyr Gly Asp Asp Leu Ser Gly Trp Trp Leu Leu Tyr Lys Lys Trp Asn  
 1105 1110 1115 1120  
 Pro Phe Thr Ser Pro Val Lys Val Pro Asp Leu Pro Asp Ile Gln Ser  
 1125 1130 1135

Arg Leu Ala Tyr Val Ser Cys Val Arg Gln Leu Glu Glu Val Lys Asn  
 1140 1145 1150

Ser Asp Tyr Cys Glu Tyr Ile Arg Pro Pro Ile Asp Lys Tyr Lys Thr  
 1155 1160 1165

Leu Ala Phe Gly Ser Phe Asp Glu Ile Arg Asp Val Gly Tyr Val Phe  
 1170 1175 1180

Gly Lys Asn Tyr Phe Glu Ser Met Ala Lys Ala Gly Arg Leu Gly Arg  
 1185 1190 1195 1200

Phe Asn Gln Trp Phe Asn Lys Glu Pro Pro Lys Arg Val Asn His Ala  
 1205 1210 1215

Ser Leu Asn Glu Tyr Thr Phe Ile Asp Leu Ala Gln Ile Val Cys Arg  
 1220 1225 1230

Leu Pro Glu Thr Tyr Ala Val Asn Thr Ala Glu Leu Phe Ser Glu Asp  
 1235 1240 1245

Glu Asp Cys Asp Gly Tyr Ile Ser Glu Pro Thr Thr Leu Asn Thr Asp  
 1250 1255 1260

Arg Arg Arg Ile Gln Val Ser Arg Ala Gly Asn Ser Leu Ser Phe Ser  
 1265 1270 1275 1280

Glu Thr Glu Met Asp Ser Asp Val Glu Leu Asp Leu Lys Leu Glu Arg  
 1285 1290 1295

Lys Thr Asp Lys Ser Thr Gln Ser Ser Pro Pro Ser Asn Ser Arg Ser  
 1300 1305 1310

Asp Met Arg Gly Lys Glu Glu Ala Arg His Met Ser Asn Trp His Trp  
 1315 1320 1325

Gly Val Lys His Lys Asp Glu Thr Gly Ser Gly Ala Thr Glu Ala Thr  
 1330 1335 1340

Lys Thr Gln Thr Gly Gln Glu Gln Glu Leu Gln Gln Glu Gln Gln Asp  
 1345 1350 1355 1360

Gln Gly Ala Thr Ala Glu Gln Leu Val Asp Lys Asp Lys Glu Glu Asn  
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Lys Glu Asn Arg Ser Ser Pro Asn Asn Glu Thr Lys Asn  
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<211> 1327

<212> PRT

<213> Homo sapiens

<400> 176

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Ala Gly Val Ala Val Val Val Thr Ala Val Leu Ile Leu Leu Val Val  
20 25 30

Arg Arg Leu Arg Val Pro Lys Thr Pro Ala Pro Asp Gly Pro Arg Tyr  
35 40 45

Arg Phe Arg Lys Arg Asp Lys Val Leu Phe Tyr Gly Arg Lys Ile Met  
50 55 60

Arg Lys Val Ser Gln Ser Thr Ser Ser Leu Val Asp Thr Ser Val Ser  
65 70 75 80

Ala Thr Ser Arg Pro Arg Met Arg Lys Lys Leu Lys Met Leu Asn Ile  
85 90 95

Ala Lys Lys Ile Leu Arg Ile Gln Lys Glu Thr Pro Thr Leu Gln Arg  
100 105 110

Lys Glu Pro Pro Pro Ala Val Leu Glu Ala Asp Leu Thr Glu Gly Asp  
115 120 125

Leu Ala Asn Ser His Leu Pro Ser Glu Val Leu Tyr Met Leu Lys Asn  
130 135 140

Val Arg Val Leu Gly His Phe Glu Lys Pro Leu Phe Leu Glu Leu Cys  
145 150 155 160

Arg His Met Val Phe Gln Arg Leu Gly Gln Gly Asp Tyr Val Phe Arg  
165 170 175

Pro Gly Gln Pro Asp Ala Ser Ile Tyr Val Val Gln Asp Gly Leu Leu  
180 185 190

Glu Leu Cys Leu Pro Gly Pro Asp Gly Lys Glu Cys Val Val Lys Glu  
195 200 205

Val Val Pro Gly Asp Ser Val Asn Ser Leu Leu Ser Ile Leu Asp Val  
210 215 220

Ile	Thr	Gly	His	Gln	His	Pro	Gln	Arg	Thr	Val	Ser	Ala	Arg	Ala	Ala	225	230	235	240
Arg	Asp	Ser	Thr	Val	Leu	Arg	Leu	Pro	Val	Glu	Ala	Phe	Ser	Ala	Val	245	250	255	
Phe	Thr	Lys	Tyr	Pro	Glu	Ser	Leu	Val	Arg	Val	Val	Gln	Ile	Ile	Met	260	265	270	
Val	Arg	Leu	Gln	Arg	Val	Thr	Phe	Leu	Ala	Leu	His	Asn	Tyr	Leu	Gly	275	280	285	
Leu	Thr	Asn	Glu	Leu	Phe	Ser	His	Glu	Ile	Gln	Pro	Leu	Arg	Leu	Phe	290	295	300	
Pro	Ser	Pro	Gly	Leu	Pro	Thr	Arg	Thr	Ser	Pro	Val	Arg	Gly	Ser	Lys	305	310	315	320
Arg	Met	Val	Ser	Thr	Ser	Ala	Thr	Asp	Glu	Pro	Arg	Glu	Thr	Pro	Gly	325	330	335	
Arg	Pro	Pro	Asp	Pro	Thr	Gly	Ala	Pro	Leu	Pro	Gly	Pro	Thr	Gly	Asp	340	345	350	
Pro	Val	Lys	Pro	Thr	Ser	Leu	Glu	Thr	Pro	Ser	Ala	Pro	Leu	Leu	Ser	355	360	365	
Arg	Cys	Val	Ser	Met	Pro	Gly	Asp	Ile	Ser	Gly	Leu	Gln	Gly	Gly	Pro	370	375	380	
Arg	Ser	Asp	Phe	Asp	Met	Ala	Tyr	Glu	Arg	Gly	Arg	Ile	Ser	Val	Ser	385	390	395	400
Leu	Gln	Glu	Glu	Ala	Ser	Gly	Gly	Ser	Leu	Ala	Ala	Pro	Ala	Arg	Thr	405	410	415	
Pro	Thr	Gln	Glu	Pro	Arg	Glu	Gln	Pro	Ala	Gly	Ala	Cys	Glu	Tyr	Ser	420	425	430	
Tyr	Cys	Glu	Asp	Glu	Ser	Ala	Thr	Gly	Gly	Cys	Pro	Phe	Gly	Pro	Tyr	435	440	445	
Gln	Gly	Arg	Gln	Thr	Ser	Ser	Ile	Phe	Glu	Ala	Ala	Lys	Gln	Glu	Leu	450	455	460	
Ala	Lys	Leu	Met	Arg	Ile	Glu	Asp	Pro	Ser	Leu	Leu	Asn	Ser	Arg	Val	465	470	475	480

Leu Leu His His Ala Lys Ala Gly Thr Ile Ile Ala Arg Gln Gly Asp  
 485 490 495  
 Gln Asp Val Ser Leu His Phe Val Leu Trp Gly Cys Leu His Val Tyr  
 500 505 510  
 Gln Arg Met Ile Asp Lys Ala Glu Asp Val Cys Leu Phe Val Ala Gln  
 515 520 525  
 Pro Gly Glu Leu Val Gly Gln Leu Ala Val Leu Thr Gly Glu Pro Leu  
 530 535 540  
 Ile Phe Thr Leu Arg Ala Gln Arg Asp Cys Thr Phe Leu Arg Ile Ser  
 545 550 555 560  
 Lys Ser Asp Phe Tyr Glu Ile Met Arg Ala Gln Pro Ser Val Val Leu  
 565 570 575  
 Ser Ala Ala His Thr Val Ala Ala Arg Met Ser Pro Phe Val Arg Gln  
 580 585 590  
 Met Asp Phe Ala Ile Asp Trp Thr Ala Val Glu Ala Gly Arg Ala Leu  
 595 600 605  
 Tyr Arg Gln Gly Asp Arg Ser Asp Cys Thr Tyr Ile Val Leu Asn Gly  
 610 615 620  
 Arg Leu Arg Ser Val Ile Gln Arg Gly Ser Gly Lys Lys Glu Leu Val  
 625 630 635 640  
 Gly Glu Tyr Gly Arg Gly Asp Leu Ile Gly Val Val Glu Ala Leu Thr  
 645 650 655  
 Arg Gln Pro Arg Ala Thr Thr Val His Ala Val Arg Asp Thr Glu Leu  
 660 665 670  
 Ala Lys Leu Pro Glu Gly Thr Leu Gly His Ile Lys Arg Arg Tyr Pro  
 675 680 685  
 Gln Val Val Thr Arg Leu Ile His Leu Leu Ser Gln Lys Ile Leu Gly  
 690 695 700  
 Asn Leu Gln Gln Leu Gln Gly Pro Phe Pro Ala Gly Ser Gly Leu Gly  
 705 710 715 720  
 Val Pro Pro His Ser Glu Leu Thr Asn Pro Ala Ser Asn Leu Ala Thr  
 725 730 735

Val	Ala	Ile	Leu	Pro	Val	Cys	Ala	Glu	Val	Pro	Met	Val	Ala	Phe	Thr			
			740					745					750					
Leu	Glu	Leu	Gln	His	Ala	Leu	Gln	Ala	Ile	Gly	Pro	Thr	Leu	Leu	Leu			
		755					760					765						
Asn	Ser	Asp	Ile	Ile	Arg	Ala	Arg	Leu	Gly	Ala	Ser	Ala	Leu	Asp	Ser			
	770					775					780							
Ile	Gln	Glu	Phe	Arg	Leu	Ser	Gly	Trp	Leu	Ala	Gln	Gln	Glu	Asp	Ala			
785					790					795					800			
His	Arg	Ile	Val	Leu	Tyr	Gln	Thr	Asp	Ala	Ser	Leu	Thr	Pro	Trp	Thr			
			805					810						815				
Val	Arg	Cys	Leu	Arg	Gln	Ala	Asp	Cys	Ile	Leu	Ile	Val	Gly	Leu	Gly			
		820					825						830					
Asp	Gln	Glu	Pro	Thr	Leu	Gly	Gln	Leu	Glu	Gln	Met	Leu	Glu	Asn	Thr			
		835				840						845						
Ala	Val	Arg	Ala	Leu	Lys	Gln	Leu	Val	Leu	Leu	His	Arg	Glu	Glu	Gly			
	850					855					860							
Ala	Gly	Pro	Thr	Arg	Thr	Val	Glu	Trp	Leu	Asn	Met	Arg	Ser	Trp	Cys			
865					870					875					880			
Ser	Gly	His	Leu	His	Leu	Arg	Cys	Pro	Arg	Arg	Leu	Phe	Ser	Arg	Arg			
			885					890						895				
Ser	Pro	Ala	Lys	Leu	His	Glu	Leu	Tyr	Glu	Lys	Val	Phe	Ser	Arg	Arg			
		900						905					910					
Ala	Asp	Arg	His	Ser	Asp	Phe	Ser	Arg	Leu	Ala	Arg	Val	Leu	Thr	Gly			
	915						920					925						
Asn	Thr	Ile	Ala	Leu	Val	Leu	Gly	Gly	Gly	Gly	Ala	Arg	Gly	Cys	Ser			
	930					935					940							
His	Ile	Gly	Val	Leu	Lys	Ala	Leu	Glu	Glu	Ala	Gly	Val	Pro	Val	Asp			
945					950					955					960			
Leu	Val	Gly	Gly	Thr	Ser	Ile	Gly	Ser	Phe	Ile	Gly	Ala	Leu	Tyr	Ala			
			965					970						975				
Glu	Glu	Arg	Ser	Ala	Ser	Arg	Thr	Lys	Gln	Arg	Ala	Arg	Glu	Trp	Ala			
		980						985					990					

Lys Ser Met Thr Ser Val Leu Glu Pro Val Leu Asp Leu Thr Tyr Pro  
995 1000 1005

Val Thr Ser Met Phe Thr Gly Ser Ala Phe Asn Arg Ser Ile His Arg  
1010 1015 1020

Val Phe Gln Asp Lys Gln Ile Glu Asp Leu Trp Leu Pro Tyr Phe Asn  
1025 1030 1035 1040

Val Thr Thr Asp Ile Thr Ala Ser Ala Met Arg Val His Lys Asp Gly  
1045 1050 1055

Ser Leu Trp Arg Tyr Val Arg Ala Ser Met Thr Leu Ser Gly Tyr Leu  
1060 1065 1070

Pro Pro Leu Cys Asp Pro Lys Asp Gly His Leu Leu Met Asp Gly Gly  
1075 1080 1085

Tyr Ile Asn Asn Leu Pro Ala Asp Ile Ala Arg Ser Met Gly Ala Lys  
1090 1095 1100

Thr Val Ile Ala Ile Asp Val Gly Ser Gln Asp Glu Thr Asp Leu Ser  
1105 1110 1115 1120

Thr Tyr Gly Asp Ser Leu Ser Gly Trp Trp Leu Leu Trp Lys Arg Leu  
1125 1130 1135

Asn Pro Trp Ala Asp Lys Val Lys Val Pro Asp Met Ala Glu Ile Gln  
1140 1145 1150

Ser Arg Leu Ala Tyr Val Ser Cys Val Arg Gln Leu Glu Val Val Lys  
1155 1160 1165

Ser Ser Ser Tyr Cys Glu Tyr Leu Arg Pro Pro Ile Asp Cys Phe Lys  
1170 1175 1180

Thr Met Asp Phe Gly Lys Phe Asp Gln Ile Tyr Asp Val Gly Tyr Gln  
1185 1190 1195 1200

Tyr Gly Lys Ala Val Phe Gly Gly Trp Ser Arg Gly Asn Val Ile Glu  
1205 1210 1215

Lys Met Leu Thr Asp Arg Arg Ser Thr Asp Leu Asn Glu Ser Arg Arg  
1220 1225 1230

Ala Asp Val Leu Ala Phe Pro Ser Ser Gly Phe Thr Asp Leu Ala Glu  
1235 1240 1245



Ile Val Ser Arg Ile Glu Pro Pro Thr Ser Tyr Val Ser Asp Gly Cys  
1250 1255 1260

Ala Asp Gly Glu Glu Ser Asp Cys Leu Thr Glu Tyr Glu Glu Asp Ala  
1265 1270 1275 1280

Gly Pro Asp Cys Ser Arg Asp Glu Gly Gly Ser Pro Glu Gly Ala Ser  
1285 1290 1295

Pro Ser Thr Ala Ser Glu Met Glu Glu Glu Lys Ser Ile Leu Arg Gln  
1300 1305 1310

Arg Arg Cys Leu Pro Gln Glu Pro Pro Gly Ser Ala Thr Asp Ala  
1315 1320 1325

<210> 177

<211> 331

<212> PRT

<213> Homo sapiens

<400> 177

Pro Asp Arg His Ser Asp Phe Ser Arg Leu Ala Arg Val Leu Thr Gly  
1 5 10 15

Asn Ala Ile Ala Leu Val Leu Gly Gly Gly Gly Ala Ser Met Thr Ser  
20 25 30

Leu Met Lys Ala Ala Leu Asp Leu Thr Tyr Pro Ile Thr Ser Met Phe  
35 40 45

Ser Gly Ala Gly Phe Asn Ser Ser Ile Phe Ser Val Phe Lys Asp Gln  
50 55 60

Gln Ile Glu Asp Leu Trp Ile Pro Tyr Phe Ala Ile Thr Thr Asp Ile  
65 70 75 80

Thr Ala Ser Ala Met Arg Val His Thr Asp Gly Ser Leu Trp Trp Tyr  
85 90 95

Val Arg Ala Ser Met Ser Leu Ser Gly Tyr Met Pro Pro Leu Cys Asp  
100 105 110

Pro Lys Asp Gly His Leu Leu Met Asp Gly Gly Tyr Ile Asn Asn Leu  
115 120 125

Pro Ala Ala Ser Ala Pro Arg Ser Leu Gly Trp Asn Thr Phe Ser Leu

130	135	140
Glu Tyr Ala Lys Gly Lys Cys Gln Ala Gly Ile Arg Ala Pro Arg Thr		
145	150	155 160
Cys Thr Arg Val Tyr Met His Thr Gln Ala Pro Ala Ala Cys Ala Pro		
165	170	175
Ala Tyr Gly Pro Val Cys Gln Leu Ser Ser Met Gln Asn Lys Gly Gln		
180	185	190
Val Glu Glu Leu Gly Ala Ile Lys Pro His Leu Cys Pro Gln Ser Glu		
195	200	205
Thr Asn Ser Leu Gln Gly Val Thr Arg Ala Gly Phe Ser Leu Ala Asp		
210	215	220
Val Ala Arg Ser Met Gly Ala Lys Val Val Ile Ala Ile Asp Val Gly		
225	230	235 240
Ser Arg Asp Glu Thr Asp Leu Thr Asn Tyr Gly Asp Ala Leu Ser Gly		
245	250	255
Trp Trp Leu Leu Trp Lys Arg Trp Asn Pro Leu Ala Thr Lys Val Lys		
260	265	270
Val Leu Asn Met Ala Glu Ile Gln Thr Arg Leu Ala Tyr Val Cys Cys		
275	280	285
Val Arg Gln Leu Glu Val Val Lys Ser Ser Asp Tyr Cys Glu Tyr Leu		
290	295	300
Arg Pro Pro Ile Asp Ser Tyr Ser Thr Leu Asp Phe Gly Lys Phe Asn		
305	310	315 320
Glu Ile Cys Glu Val Gly Tyr Gln His Gly Arg		
325	330	

<210> 178

<211> 289

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: UPF0028 domain  
sequence

<400> 178

Ile Ala Phe Gln Ser Asp Phe Ser Arg Leu Ala Arg Ile Leu Thr Gly  
1 5 10 15

Asn Ala Ile Gly Leu Val Leu Gly Gly Gly Gly Ala Arg Gly Ala Ala  
20 25 30

His Ile Gly Val Ile Gln Ala Leu Lys Glu Val Gly Ile Pro Ile Asp  
35 40 45

Ile Val Gly Gly Thr Ser Ile Gly Ser Leu Val Gly Ala Leu Tyr Ala  
50 55 60

Cys Asp Pro Asp Ser Val Leu Val Asp Ala Arg Ala Lys Trp Phe Phe  
65 70 75 80

Ser Gly Ser Ser Ser Ile Trp Asp Arg Leu Met Asp Leu Thr Trp Pro  
85 90 95

Arg Ser Gly Leu Leu Thr Gly His Arg Phe Asn Arg Gln Val Gln Glu  
100 105 110

Ile Phe Gly Glu Thr Leu Ile Glu Asp Cys Trp Arg Ser Phe Phe Cys  
115 120 125

Val Ser Thr Asp Leu Ser Thr Ser Arg Gln Arg Ile His Arg Glu Gly  
130 135 140

Asp Leu Trp Leu Ala Ile Arg Ala Ser Met Ser Ile Ala Gly Leu Leu  
145 150 155 160

Pro Pro Val Cys Gln Asn Gly His Leu Leu Leu Asp Gly Gly Tyr Val  
165 170 175

Asn Asn Leu Pro Ala Asp Val Met Arg Ala Leu Gly Ala Asp Ile Val  
180 185 190

Ile Ala Val Asp Val Gly Ser Ala Asp Leu Thr Asn Leu Asp Leu Tyr  
195 200 205

Gly Phe Ser Leu Ser Gly Glu Trp Ile Leu Phe Lys Arg Trp Asn Pro  
210 215 220

Phe Gly Ala Arg Leu Arg Ile Leu Asn Met Ser Glu Ile Gln Arg Arg  
225 230 235 240

Leu Ala Tyr Val Pro Cys Val Arg Ala Leu Glu Thr Ala Lys Asn Thr  
245 250 255

Val Tyr Cys Arg Tyr Leu Lys Arg Pro Ile Glu Ala Phe Asp Thr Leu  
260 265 270

Asp Phe Ser Lys Phe Pro Glu Ile Pro Gln Ile Gly Val Leu Tyr Phe  
275 280 285

Lys

<210> 179

<211> 94

<212> PRT

<213> Homo sapiens

<400> 179

Ala Leu Asp Trp Val Glu Val Glu Ala Gly Arg Ala Ile Tyr Arg Gln  
1 5 10 15

Gly Asp Lys Ser Asp Cys Thr Tyr Ile Met Leu Ser Gly Arg Leu Arg  
20 25 30

Ser Val Ile Arg Lys Asp Asp Gly Lys Lys Arg Leu Ala Gly Glu Tyr  
35 40 45

Gly Arg Gly Asp Leu Val Gly Val Val Glu Thr Leu Thr His Gln Ala  
50 55 60

Arg Ala Thr Thr Val His Ala Val Arg Asp Ser Glu Leu Ala Lys Leu  
65 70 75 80

Pro Ala Gly Ala Leu Thr Cys Ile Lys Arg Arg Tyr Pro Gln  
85 90

<210> 180

<211> 94

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cyclic  
nucleotide-binding domain sequence

<400> 180

Ala Leu Glu Glu Arg Ser Tyr Pro Ala Gly Glu Val Ile Ile Arg Gln  
1 5 10 15

Gly Asp Pro Gly Asp Ser Leu Tyr Ile Val Val Ser Gly Ser Val Glu  
20 25 30

Val Tyr Arg Leu Leu Glu Asp Gly Arg Glu Gln Ile Val Gly Thr Leu  
35 40 45

Gly Pro Gly Asp Leu Phe Gly Glu Leu Ala Leu Leu Thr Asn Pro Pro  
50 55 60

Arg Thr Ala Thr Val Arg Ala Leu Thr Asp Cys Glu Leu Leu Arg Leu  
65 70 75 80

Asp Arg Glu Asp Phe Glu Arg Leu Leu Glu Gln Tyr Pro Glu  
85 90

<210> 181

<211> 89

<212> PRT

<213> Homo sapiens

<400> 181

His Val Pro Ala Gly Thr Val Val Ser Arg Gln Gly Asp Gln Asp Ala  
1 5 10 15

Ser Ile Leu Phe Val Val Ser Gly Leu Leu His Val Tyr Gln Arg Lys  
20 25 30

Ile Gly Ser Gln Glu Asp Thr Cys Leu Phe Leu Thr Arg Pro Gly Glu  
35 40 45

Met Val Gly Gln Leu Ala Val Leu Thr Gly Glu Pro Leu Ile Phe Thr  
50 55 60

Val Lys Ala Asn Arg Asp Cys Ser Phe Leu Ser Ile Ser Lys Ala His  
65 70 75 80

Phe Tyr Glu Ile Met Arg Lys Gln Pro  
85

<210> 182

<211> 88

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cyclic  
nucleotide-binding domain sequence

<400> 182

Ser Tyr Pro Ala Gly Glu Val Ile Ile Arg Gln Gly Asp Pro Gly Asp  
1 5 10 15

Ser Leu Tyr Ile Val Val Ser Gly Ser Val Glu Val Tyr Arg Leu Leu  
20 25 30

Glu Asp Gly Arg Glu Gln Ile Val Gly Thr Leu Gly Pro Gly Asp Leu  
35 40 45

Phe Gly Glu Leu Ala Leu Leu Thr Asn Pro Pro Arg Thr Ala Thr Val  
50 55 60

Arg Ala Leu Thr Asp Cys Glu Leu Leu Arg Leu Asp Arg Glu Asp Phe  
65 70 75 80

Glu Arg Leu Leu Glu Gln Tyr Pro  
85

<210> 183

<211> 101

<212> PRT

<213> Homo sapiens

<400> 183

His Ile Val Phe Val Gln Leu Gln Glu Gly Glu His Val Phe Gln Pro  
1 5 10 15

Arg Glu Pro Asp Pro Ser Ile Cys Val Val Gln Asp Gly Arg Leu Glu  
20 25 30

Val Cys Ile Gln Asp Thr Asp Gly Thr Glu Val Val Val Lys Glu Val  
35 40 45

Leu Ala Gly Asp Ser Val His Ser Leu Leu Ser Ile Leu Asp Ile Ile  
50 55 60

Thr Gly His Ala Ala Pro Tyr Lys Thr Val Ser Val Arg Ala Ala Ile  
65 70 75 80

Pro Ser Thr Ile Leu Arg Leu Pro Ala Ala Ala Phe His Gly Val Phe  
85 90 95

Glu Lys Tyr Pro Glu

&lt;210&gt; 184

&lt;211&gt; 94

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Cyclic  
nucleotide-binding domain sequence

&lt;400&gt; 184

Ala	Leu	Glu	Glu	Arg	Ser	Tyr	Pro	Ala	Gly	Glu	Val	Ile	Ile	Arg	Gln
1				5					10					15	

Gly	Asp	Pro	Gly	Asp	Ser	Leu	Tyr	Ile	Val	Val	Ser	Gly	Ser	Val	Glu
			20					25					30		

Val	Tyr	Arg	Leu	Leu	Glu	Asp	Gly	Arg	Glu	Gln	Ile	Val	Gly	Thr	Leu
		35					40					45			

Gly	Pro	Gly	Asp	Leu	Phe	Gly	Glu	Leu	Ala	Leu	Leu	Thr	Asn	Pro	Pro
	50					55					60				

Arg	Thr	Ala	Thr	Val	Arg	Ala	Leu	Thr	Asp	Cys	Glu	Leu	Leu	Arg	Leu
65					70					75				80	

Asp	Arg	Glu	Asp	Phe	Glu	Arg	Leu	Leu	Glu	Gln	Tyr	Pro	Glu		
				85					90						

&lt;210&gt; 185

&lt;211&gt; 115

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 185

Ser	Phe	Val	Arg	Gln	Ile	Asp	Phe	Ala	Leu	Asp	Trp	Val	Glu	Val	Glu
1				5					10				15		

Ala	Gly	Arg	Ala	Ile	Tyr	Arg	Gln	Gly	Asp	Lys	Ser	Asp	Cys	Thr	Tyr
			20					25					30		

Ile	Met	Leu	Ser	Gly	Arg	Leu	Arg	Ser	Val	Ile	Arg	Lys	Asp	Asp	Gly
		35					40					45			

Lys	Lys	Arg	Leu	Ala	Gly	Glu	Tyr	Gly	Arg	Gly	Asp	Leu	Val	Gly	Val
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

50	55	60
Val Glu Thr Leu Thr His Gln Ala Arg Ala Thr Thr Val His Ala Val		
65	70	75 80
Arg Asp Ser Glu Leu Ala Lys Leu Pro Ala Gly Ala Leu Thr Cys Ile		
	85 90	95
Lys Arg Arg Tyr Pro Gln Val Val Thr Arg Leu Ile His Leu Leu Gly		
	100 105	110
Glu Lys Ile		
	115	

<210> 186

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cyclic  
nucleotide-binding domain sequence

<400> 186

Glu Glu Leu Arg Glu Leu Ala Asp Ala Leu Glu Pro Val Arg Tyr Pro
1 5 10 15

Ala Gly Glu Val Ile Ile Arg Gln Gly Asp Val Gly Asp Ser Phe Tyr
20 25 30

Ile Ile Val Ser Gly Glu Val Glu Val Tyr Lys Thr Leu Glu Asp Gly
35 40 45

Arg Glu Gln Ile Leu Gly Thr Leu Gly Pro Gly Asp Phe Phe Gly Glu
50 55 60

Leu Ala Leu Leu Thr Asn Arg Arg Arg Ala Arg Ser Ala Ala Val
65 70 75 80

Ala Leu Glu Leu Ala Lys Leu Leu Arg Ile Asp Phe Arg Asp Phe Leu
85 90 95

Gln Leu Leu Pro Glu Ile Pro Gln Leu Leu Leu Glu Leu Leu Glu
100 105 110

Leu Ala



<210> 187  
 <211> 123  
 <212> PRT  
 <213> Homo sapiens

<400> 187  
 Val Leu Gly His Phe Glu Lys Pro Leu Phe Leu Glu Leu Cys Lys His  
   1                  5                  10                  15  
 Ile Val Phe Val Gln Leu Gln Glu Gly Glu His Val Phe Gln Pro Arg  
                   20                  25                  30  
 Glu Pro Asp Pro Ser Ile Cys Val Val Gln Asp Gly Arg Leu Glu Val  
           35                  40                  45  
 Cys Ile Gln Asp Thr Asp Gly Thr Glu Val Val Val Lys Glu Val Leu  
   50                  55                  60  
 Ala Gly Asp Ser Val His Ser Leu Leu Ser Ile Leu Asp Ile Ile Thr  
   65                  70                  75                  80  
 Gly His Ala Ala Pro Tyr Lys Thr Val Ser Val Arg Ala Ala Ile Pro  
                   85                  90                  95  
 Ser Thr Ile Leu Arg Leu Pro Ala Ala Ala Phe His Gly Val Phe Glu  
           100                  105                  110  
 Lys Tyr Pro Glu Thr Leu Val Arg Val Val Gln  
       115                  120

<210> 188  
 <211> 118  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Cyclic  
       nucleotide-binding domain sequence

<400> 188  
 Leu Phe Lys Ala Leu Asp Ala Glu Glu Leu Arg Glu Leu Ala Asp Ala  
   1                  5                  10                  15  
 Leu Glu Pro Val Arg Tyr Pro Ala Gly Glu Val Ile Ile Arg Gln Gly  
           20                  25                  30

Asp Val Gly Asp Ser Phe Tyr Ile Ile Val Ser Gly Glu Val Glu Val  
 35 40 45 .

Tyr Lys Thr Leu Glu Asp Gly Arg Glu Gln Ile Leu Gly Thr Leu Gly  
 50 55 60

Pro Gly Asp Phe Phe Gly Glu Leu Ala Leu Leu Thr Asn Arg Arg Arg  
 65 70 75 80

Ala Arg Ser Ala Ala Ala Val Ala Leu Glu Leu Ala Lys Leu Leu Arg  
 85 90 95

Ile Asp Phe Arg Asp Phe Leu Gln Leu Leu Pro Glu Ile Pro Gln Leu  
 100 105 110

Leu Leu Glu Leu Leu Leu  
 115

<210> 189

<211> 89

<212> PRT

<213> Homo sapiens

<400> 189

His Val Pro Ala Gly Thr Val Val Ser Arg Gln Gly Asp Gln Asp Ala  
 1 5 10 15

Ser Ile Leu Phe Val Val Ser Gly Leu Leu His Val Tyr Gln Arg Lys  
 20 25 30

Ile Gly Ser Gln Glu Asp Thr Cys Leu Phe Leu Thr Arg Pro Gly Glu  
 35 40 45

Met Val Gly Gln Leu Ala Val Leu Thr Gly Glu Pro Leu Ile Phe Thr  
 50 55 60

Val Lys Ala Asn Arg Asp Cys Ser Phe Leu Ser Ile Ser Lys Ala His  
 65 70 75 80

Phe Tyr Glu Ile Met Arg Lys Gln Pro  
 85

<210> 190

<211> 90

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cyclic  
nucleotide-binding domain sequence

<400> 190

Arg Tyr Pro Ala Gly Glu Val Ile Ile Arg Gln Gly Asp Val Gly Asp  
1 5 10 15

Ser Phe Tyr Ile Ile Val Ser Gly Glu Val Glu Val Tyr Lys Thr Leu  
20 25 30

Glu Asp Gly Arg Glu Gln Ile Leu Gly Thr Leu Gly Pro Gly Asp Phe  
35 40 45

Phe Gly Glu Leu Ala Leu Leu Thr Asn Arg Arg Arg Ala Arg Ser Ala  
50 55 60

Ala Ala Val Ala Leu Glu Leu Ala Lys Leu Leu Arg Ile Asp Phe Arg  
65 70 75 80

Asp Phe Leu Gln Leu Leu Pro Glu Ile Pro  
85 90

<210> 191

<211> 330

<212> PRT

<213> Homo sapiens

<400> 191

Met Arg Arg Pro Ser Val Arg Ala Ala Gly Leu Val Leu Cys Thr Leu  
1 5 10 15

Cys Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Glu  
20 25 30

Ala Glu Ser Gly Arg Gln Arg Leu Leu Val Gln Lys Arg Gly Ala Leu  
35 40 45

Arg Arg Lys Phe Gly Phe Ser Ala Glu Asp Tyr Arg Glu Leu Glu Arg  
50 55 60

Leu Ala Leu Gln Ala Glu Pro His Arg Ala Gly Arg Gln Trp Lys Phe  
65 70 75 80

Pro Gly Ser Phe Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Glu Tyr

	85		90		95
Gly His Ala Ala Pro Gly Thr Asp Ser Gly Lys Val Phe Cys Met Phe	100	105	110		
Tyr Ala Leu Leu Gly Ile Pro Leu Thr Leu Val Thr Phe Gln Ser Leu	115	120	125		
Gly Glu Arg Leu Asn Ala Val Val Arg Arg Leu Leu Leu Ala Ala Lys	130	135	140		
Cys Cys Leu Gly Leu Arg Trp Thr Cys Val Ser Thr Glu Asn Leu Val	145	150	155	160	
Val Ala Gly Leu Leu Ala Cys Ala Ala Thr Leu Ala Leu Gly Ala Val	165	170	175		
Ala Phe Ser His Phe Glu Gly Trp Thr Phe Phe His Ala Tyr Tyr Tyr	180	185	190		
Cys Phe Ile Thr Leu Thr Thr Ile Gly Phe Gly Asp Phe Val Ala Leu	195	200	205		
Gln Ser Gly Glu Ala Leu Gln Arg Lys Leu Pro Tyr Val Ala Phe Ser	210	215	220		
Phe Leu Tyr Ile Leu Leu Gly Leu Thr Val Ile Gly Ala Phe Leu Asn	225	230	235	240	
Leu Val Val Leu Arg Phe Leu Val Ala Ser Ala Asp Trp Pro Glu Arg	245	250	255		
Ala Ala Arg Thr Pro Ser Pro Arg Pro Pro Gly Ala Pro Glu Ser Arg	260	265	270		
Gly Leu Trp Leu Pro Arg Arg Pro Ala Arg Ser Val Gly Ser Ala Ser	275	280	285		
Val Phe Cys His Val His Lys Leu Glu Arg Cys Ala Arg Asp Asn Leu	290	295	300		
Gly Phe Ser Pro Pro Ser Ser Pro Gly Val Val Arg Gly Gly Gln Ala	305	310	315	320	
Pro Arg Leu Gly Ala Arg Trp Lys Ser Ile	325	330			

<210> 192

<211> 330

<212> PRT

<213> Homo sapiens

<400> 192

Met Arg Arg Pro Ser Val Arg Ala Ala Gly Leu Val Leu Cys Thr Leu  
1 5 10 15

Cys Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Glu  
20 25 30

Ala Glu Ser Gly Arg Gln Arg Leu Leu Val Gln Lys Arg Gly Ala Leu  
35 40 45

Arg Arg Lys Phe Gly Phe Ser Ala Glu Asp Tyr Arg Glu Leu Glu Arg  
50 55 60

Leu Ala Leu Gln Ala Glu Pro His Arg Ala Gly Arg Gln Trp Lys Phe  
65 70 75 80

Pro Gly Ser Phe Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Gly Tyr  
85 90 95

Gly His Ala Ala Pro Gly Thr Asp Ser Gly Lys Val Phe Cys Met Phe  
100 105 110

Tyr Ala Leu Leu Gly Ile Pro Leu Thr Leu Val Thr Phe Gln Ser Leu  
115 120 125

Gly Glu Arg Leu Asn Ala Val Val Arg Arg Leu Leu Leu Ala Ala Lys  
130 135 140

Cys Cys Leu Gly Leu Arg Trp Thr Cys Val Ser Thr Glu Asn Leu Val  
145 150 155 160

Val Ala Gly Leu Leu Ala Cys Ala Ala Thr Leu Ala Leu Gly Ala Val  
165 170 175

Ala Phe Ser His Phe Glu Gly Trp Thr Phe Phe His Ala Tyr Tyr Tyr  
180 185 190

Cys Phe Ile Thr Leu Thr Thr Ile Gly Phe Gly Asp Phe Val Ala Leu  
195 200 205

Gln Ser Gly Glu Ala Leu Gln Arg Lys Leu Pro Tyr Val Ala Phe Ser  
210 215 220

Phe Leu Tyr Ile Leu Leu Gly Leu Thr Val Ile Gly Ala Phe Leu Asn  
 225 230 235 240

Leu Val Val Leu Arg Phe Leu Val Ala Ser Ala Asp Trp Pro Glu Arg  
 245 250 255

Ala Ala Arg Pro Pro Ser Pro Arg Pro Pro Gly Ala Pro Glu Ser Arg  
 260 265 270

Gly Leu Trp Leu Pro Arg Arg Pro Ala Arg Ser Val Gly Ser Ala Ser  
 275 280 285

Val Phe Cys His Val His Lys Leu Glu Arg Cys Ala Arg Asp Asn Leu  
 290 295 300

Gly Phe Ser Pro Pro Ser Ser Pro Gly Val Val Arg Gly Gly Gln Ala  
 305 310 315 320

Pro Arg Pro Gly Ala Arg Trp Lys Ser Ile  
 325 330

<210> 193

<211> 330

<212> PRT

<213> Homo sapiens

<400> 193

Met Arg Arg Pro Ser Val Arg Ala Ala Gly Leu Val Leu Cys Thr Leu  
 1 5 10 15

Cys Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Glu  
 20 25 30

Ala Glu Ser Gly Arg Gln Arg Leu Leu Val Gln Lys Arg Gly Ala Leu  
 35 40 45

Arg Arg Lys Phe Gly Phe Ser Ala Glu Asp Tyr Arg Glu Leu Glu Arg  
 50 55 60

Leu Ala Leu Gln Ala Glu Pro His Arg Ala Gly Arg Gln Trp Lys Phe  
 65 70 75 80

Pro Gly Ser Phe Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Gly Tyr  
 85 90 95

Gly His Ala Ala Pro Gly Thr Asp Ser Gly Lys Val Phe Cys Met Phe  
 100 105 110

Tyr Ala Leu Leu Gly Ile Pro Leu Thr Leu Val Thr Phe Gln Ser Leu  
115 120 125

Gly Glu Arg Leu Asn Ala Val Val Arg Arg Leu Leu Leu Ala Ala Lys  
130 135 140

Cys Cys Leu Gly Leu Arg Trp Thr Cys Val Ser Thr Glu Asn Leu Val  
145 150 155 160

Val Ala Gly Leu Leu Ala Cys Ala Ala Thr Leu Ala Leu Gly Ala Val  
165 170 175

Ala Phe Ser His Phe Glu Gly Trp Thr Phe Phe His Ala Tyr Tyr Tyr  
180 185 190

Cys Phe Ile Thr Leu Thr Thr Ile Gly Phe Gly Asp Phe Val Ala Leu  
195 200 205

Gln Ser Gly Glu Ala Leu Gln Arg Lys Leu Pro Tyr Val Ala Phe Ser  
210 215 220

Phe Leu Tyr Ile Leu Leu Gly Leu Thr Val Ile Gly Ala Phe Leu Asn  
225 230 235 240

Leu Val Val Leu Arg Phe Leu Val Ala Ser Ala Asp Trp Pro Glu Arg  
245 250 255

Ala Ala Arg Thr Pro Ser Pro Arg Pro Pro Gly Ala Pro Glu Ser Arg  
260 265 270

Gly Leu Trp Leu Pro Arg Arg Pro Ala Arg Ser Val Gly Ser Ala Ser  
275 280 285

Val Phe Cys His Val His Lys Leu Glu Arg Cys Ala Arg Asp Asn Leu  
290 295 300

Gly Phe Ser Pro Pro Ser Ser Pro Gly Val Val Arg Gly Gly Gln Ala  
305 310 315 320

Pro Arg Leu Gly Ala Arg Trp Lys Ser Ile  
325 330

<210> 194

<211> 374

<212> PRT

<213> Homo sapiens

<400> 194

Met Lys Arg Gln Asn Val Arg Thr Leu Ser Leu Ile Val Cys Thr Phe  
1 5 10 15

Thr Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Asp  
20 25 30

His Glu Met Arg Glu Glu Glu Lys Leu Lys Ala Glu Glu Ile Arg Ile  
35 40 45

Lys Gly Lys Tyr Asn Ile Ser Ser Glu Asp Tyr Arg Gln Leu Glu Leu  
50 55 60

Val Ile Leu Gln Ser Glu Pro His Arg Ala Gly Val Gln Trp Lys Phe  
65 70 75 80

Ala Gly Ser Phe Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Gly Tyr  
85 90 95

Gly His Ala Ala Pro Gly Thr Asp Ala Gly Lys Ala Phe Cys Met Phe  
100 105 110

Tyr Ala Val Leu Gly Ile Pro Leu Thr Leu Val Met Phe Gln Ser Leu  
115 120 125

Gly Glu Arg Met Asn Thr Phe Val Arg Tyr Leu Leu Lys Arg Ile Lys  
130 135 140

Lys Cys Cys Gly Met Arg Asn Thr Asp Val Ser Met Glu Asn Met Val  
145 150 155 160

Thr Val Gly Phe Phe Ser Cys Met Gly Thr Leu Cys Ile Gly Ala Ala  
165 170 175

Ala Phe Ser Gln Cys Glu Glu Trp Ser Phe Phe His Ala Tyr Tyr Tyr  
180 185 190

Cys Phe Ile Thr Leu Thr Thr Ile Gly Phe Gly Asp Tyr Val Ala Leu  
195 200 205

Gln Thr Lys Gly Ala Leu Gln Lys Lys Pro Leu Tyr Val Ala Phe Ser  
210 215 220

Phe Met Tyr Ile Leu Val Gly Leu Thr Val Ile Gly Ala Phe Leu Asn  
225 230 235 240

Leu Val Val Leu Arg Phe Leu Thr Met Asn Ser Glu Asp Glu Arg Arg



					245						250						255
Asp	Ala	Glu	Glu	Arg	Ala	Ser	Leu	Ala	Gly	Asn	Arg	Asn	Ser	Met	Val		
			260						265					270			
Ile	His	Ile	Pro	Glu	Glu	Pro	Arg	Pro	Ser	Arg	Pro	Arg	Tyr	Lys	Ala		
		275						280					285				
Asp	Val	Pro	Asp	Leu	Gln	Ser	Val	Cys	Ser	Cys	Thr	Cys	Tyr	Arg	Ser		
	290						295					300					
Gln	Asp	Tyr	Gly	Gly	Arg	Ser	Val	Ala	Pro	Gln	Asn	Ser	Phe	Ser	Ala		
305						310					315				320		
Lys	Leu	Ala	Pro	His	Tyr	Phe	His	Ser	Ile	Ser	Tyr	Lys	Ile	Glu	Glu		
				325					330					335			
Ile	Ser	Pro	Ser	Thr	Leu	Lys	Asn	Ser	Leu	Phe	Pro	Ser	Pro	Ile	Ser		
			340						345					350			
Ser	Ile	Ser	Pro	Gly	Leu	His	Ser	Phe	Thr	Asp	His	Gln	Arg	Leu	Met		
		355						360					365				
Lys	Arg	Arg	Lys	Ser	Val												
		370															

<210> 195  
 <211> 387  
 <212> PRT  
 <213> Cavia porcellus

<400> 195																	
Met	Lys	Lys	Gln	Asn	Val	Arg	Thr	Leu	Ser	Leu	Ile	Ala	Cys	Thr	Phe		
1				5					10					15			
Thr	Tyr	Leu	Leu	Val	Gly	Ala	Ala	Val	Phe	Asp	Ala	Leu	Glu	Ser	Asp		
			20					25					30				
His	Glu	Met	Arg	Glu	Glu	Glu	Lys	Leu	Lys	Ala	Glu	Glu	Ile	Arg	Ile		
		35					40					45					
Arg	Gly	Lys	Tyr	Asn	Ile	Ser	Thr	Glu	Asp	Tyr	Arg	Gln	Leu	Glu	Leu		
	50					55					60						
Val	Ile	Leu	Gln	Ser	Glu	Pro	His	Arg	Ala	Gly	Val	Gln	Trp	Lys	Phe		
65					70					75					80		

Ala	Gly	Ser	Phe	Tyr	Phe	Ala	Ile	Thr	Val	Ile	Thr	Thr	Ile	Gly	Tyr	85	90	95	
Gly	His	Ala	Ala	Pro	Gly	Thr	Asp	Ala	Gly	Lys	Ala	Phe	Cys	Met	Phe	100	105	110	
Tyr	Ala	Val	Leu	Gly	Ile	Pro	Leu	Thr	Leu	Val	Met	Phe	Gln	Ser	Leu	115	120	125	
Gly	Glu	Arg	Met	Asn	Thr	Phe	Val	Arg	Tyr	Leu	Leu	Lys	Arg	Ile	Lys	130	135	140	
Lys	Cys	Cys	Gly	Met	Arg	Asn	Thr	Glu	Val	Ser	Met	Glu	Asn	Met	Val	145	150	155	160
Thr	Val	Gly	Phe	Phe	Ser	Cys	Met	Gly	Thr	Leu	Cys	Ile	Gly	Ala	Ala	165	170	175	
Ala	Phe	Ser	Gln	Cys	Glu	Glu	Trp	Ser	Phe	Phe	His	Ala	Tyr	Tyr	Tyr	180	185	190	
Cys	Phe	Ile	Thr	Leu	Thr	Thr	Ile	Gly	Phe	Gly	Asp	Tyr	Val	Ala	Leu	195	200	205	
Gln	Ser	Lys	Gly	Ala	Leu	Gln	Arg	Lys	Pro	Phe	Tyr	Val	Ala	Phe	Ser	210	215	220	
Phe	Met	Tyr	Ile	Leu	Val	Gly	Leu	Thr	Val	Ile	Gly	Ala	Phe	Leu	Asn	225	230	235	240
Leu	Val	Val	Leu	Arg	Phe	Leu	Thr	Met	Asn	Ser	Asp	Glu	Glu	Arg	Gly	245	250	255	
Glu	Gly	Glu	Glu	Gly	Ala	Ala	Leu	Pro	Gly	Asn	Pro	Ser	Ser	Val	Val	260	265	270	
Thr	His	Ile	Ser	Glu	Glu	Ala	Arg	Gln	Val	Arg	Gln	Arg	Tyr	Arg	Gly	275	280	285	
Glu	Gly	Gly	Asp	Leu	Gln	Ser	Val	Cys	Ser	Cys	Ala	Cys	Tyr	Arg	Ser	290	295	300	
Gln	Pro	Gln	Asn	Phe	Gly	His	Lys	Leu	Glu	Arg	Cys	Ala	Arg	Asp	Asn	305	310	315	320
Leu	Gly	Phe	Ser	Pro	Pro	Ser	Ser	Pro	Gly	Val	Val	Ala	Thr	Leu	Ala	325	330	335	

Pro Gln Pro Leu His Ser Ile Ser Cys Arg Ile Glu Glu Ile Ser Pro  
 340 345 350

Ser Thr Leu Lys Asn Ser Leu Phe Pro Ser Pro Ile Ser Ser Val Ser  
 355 360 365

Pro Gly Leu His Ser Phe Gly Asp Asn His Arg Leu Met Leu Arg Arg  
 370 375 380

Lys Ser Val  
 385

<210> 196

<211> 257

<212> PRT

<213> *Xenopus laevis*

<400> 196

Met Gly Arg Val Ile Arg Gly Gln Arg Lys Gly Ala Gly Ser Val Phe  
 1 5 10 15

Lys Ala His Val Lys His Arg Lys Gly Ala Ala Lys Leu Arg Ala Ile  
 20 25 30

Asp Phe Ala Glu Arg Asn Gly Tyr Ile Lys Gly Ile Val Lys Asp Ile  
 35 40 45

Ile His Asp Pro Gly Arg Gly Ala Pro Leu Ala Lys Val Ala Phe Arg  
 50 55 60

Asp Pro Tyr Arg Phe Lys Lys Arg Thr Glu Leu Phe Val Ala Ala Glu  
 65 70 75 80

Gly Ile His Thr Gly Gln Phe Val Tyr Cys Gly Lys Lys Ala Gln Leu  
 85 90 95

Asn Ile Gly Asn Val Leu Pro Val Gly Thr Met Pro Glu Gly Thr Ile  
 100 105 110

Val Cys Cys Val Glu Glu Lys Pro Gly Asp Arg Gly Lys Leu Ala Arg  
 115 120 125

Ala Ser Gly Asn Tyr Ala Thr Val Ile Ser His Asn Pro Glu Thr Lys  
 130 135 140

Lys Thr Arg Val Lys Leu Pro Ser Gly Ser Lys Lys Val Ile Ser Ser  
 145 150 155 160

Ala Asn Arg Ala Ile Val Gly Val Val Ala Gly Gly Gly Arg Ile Asp  
165 170 175

Lys Pro Ile Leu Lys Ala Gly Arg Ala Tyr His Lys Tyr Lys Ala Lys  
180 185 190

Arg Asn Cys Trp Pro Arg Val Arg Gly Val Ala Met Asn Pro Val Glu  
195 200 205

His Pro Phe Gly Gly Gly Asn His Gln His Ile Gly Lys Pro Ser Thr  
210 215 220

Ile Arg Arg Asp Ala Pro Ala Gly Arg Lys Val Gly Leu Ile Ala Ala  
225 230 235 240

Arg Arg Thr Gly Arg Leu Arg Gly Thr Lys Thr Val Gln Glu Lys Glu  
245 250 255

Asn

<210> 197

<211> 257

<212> PRT

<213> Homo sapiens

<400> 197

Met Gly Arg Val Ile Arg Gly Gln Arg Lys Gly Ala Gly Ser Val Phe  
1 5 10 15

Arg Ala His Val Lys His Arg Lys Gly Ala Ala Arg Leu Arg Ala Val  
20 25 30

Asp Phe Ala Glu Arg His Gly Tyr Ile Lys Gly Ile Val Lys Asp Ile  
35 40 45

Ile His Asp Pro Gly Arg Gly Ala Pro Leu Ala Lys Val Val Phe Arg  
50 55 60

Asp Pro Tyr Arg Phe Lys Lys Arg Thr Glu Leu Phe Ile Ala Ala Glu  
65 70 75 80

Gly Ile His Thr Gly Gln Phe Val Tyr Cys Gly Lys Lys Ala Gln Leu  
85 90 95

Asn Ile Gly Asn Val Leu Pro Val Gly Thr Met Pro Glu Gly Thr Ile



Ile His Asp Pro Gly Arg Gly Ala Pro Leu Ala Lys Val Val Phe Arg  
 50 55 60  
 Asp Pro Tyr Arg Phe Lys Lys Arg Thr Glu Leu Phe Ile Ala Ala Glu  
 65 70 75 80  
 Gly Ile His Thr Gly Gln Phe Val Tyr Cys Gly Lys Lys Ala Gln Leu  
 85 90 95  
 Asn Val Gly Asn Val Leu Pro Val Gly Thr Met Pro Glu Gly Thr Ile  
 100 105 110  
 Val Cys Cys Leu Glu Glu Lys Pro Gly Asp Arg Gly Lys Leu Ala Arg  
 115 120 125  
 Ala Ser Gly Asn Tyr Ala Thr Val Ile Ser His Asn Pro Glu Thr Lys  
 130 135 140  
 Lys Thr Arg Val Lys Leu Pro Ser Gly Ser Lys Lys Val Ile Ser Ser  
 145 150 155 160  
 Ala Asn Arg Ala Val Val Gly Val Val Ala Gly Gly Gly Arg Ile Asp  
 165 170 175  
 Lys Pro Ile Leu Lys Ala Gly Arg Ala Tyr His Lys Tyr Lys Ala Lys  
 180 185 190  
 Arg Asn Cys Trp Pro Arg Val Arg Gly Val Ala Met Asn Pro Val Glu  
 195 200 205  
 His Pro Phe Gly Gly Gly Asn His Gln His Ile Gly Lys Pro Ser Thr  
 210 215 220  
 Ile Arg Arg Asp Ala Pro Ala Gly Arg Lys Val Gly Leu Ile Ala Ala  
 225 230 235 240  
 Arg Arg Thr Gly Arg Leu Arg Gly Thr Lys Thr Val Gln Glu Lys Glu  
 245 250 255

Asn

<210> 199

<211> 257

<212> PRT

<213> Ictalurus punctatus

<400> 199

Met Gly Arg Val Ile Arg Ala Gln Arg Lys Gly Ala Gly Ser Val Phe  
1 5 10 15

Lys Ala His Val Lys His Arg Lys Gly Ala Ala Lys Leu Arg His Ile  
20 25 30

Asp Phe Ala Glu Arg His Gly Tyr Ile Lys Gly Ile Val Lys Asp Ile  
35 40 45

Ile His Asp Pro Gly Arg Gly Thr Pro Leu Ala Lys Val Val Phe Arg  
50 55 60

Asp Pro Tyr Arg Phe Lys Lys Arg Thr Glu Leu Phe Ile Ala Ala Glu  
65 70 75 80

Gly Ile His Thr Gly Gln Phe Val Phe Cys Gly Lys Lys Ala Gln Leu  
85 90 95

Asn Ile Gly Asn Val Leu Pro Val Gly Val Met Pro Glu Gly Thr Ile  
100 105 110

Ile Cys Cys Leu Glu Glu Lys Pro Gly Asp Arg Gly Lys Leu Ala Arg  
115 120 125

Ala Ser Gly Asn Tyr Ala Thr Val Ile Ser His Asn Pro Glu Thr Lys  
130 135 140

Lys Ser Arg Val Lys Leu Pro Ser Gly Ala Lys Lys Val Ile Ser Ser  
145 150 155 160

Thr Asn Arg Ala Val Val Gly Val Val Ala Gly Gly Gly Arg Ile Asp  
165 170 175

Lys Pro Ile Leu Lys Ala Gly Arg Ala Tyr His Lys Tyr Lys Val Lys  
180 185 190

Arg Asn Cys Trp Pro Arg Val Arg Gly Val Ala Met Asn Pro Val Glu  
195 200 205

His Pro Phe Gly Gly Gly Asn His Gln His Ile Gly Lys Pro Ser Thr  
210 215 220

Ile Arg Arg Asp Val Pro Ala Gly Arg Lys Val Gly Leu Ile Ala Ala  
225 230 235 240

Arg Arg Thr Gly Arg Leu Arg Gly Thr Lys Thr Val Gln Glu Lys Glu  
245 250 255

Asn

<210> 200

<211> 214

<212> PRT

<213> Homo sapiens

<400> 200

His Glu Glu Asp Ile Ile His Asp Pro Gly Arg Gly Ala Pro Leu Ala  
1 5 10 15

Lys Val Val Phe Arg Asp Pro Tyr Arg Phe Lys Lys Arg Thr Glu Leu  
20 25 30

Phe Ile Ala Ala Glu Gly Ile His Thr Gly Gln Phe Val Tyr Cys Gly  
35 40 45

Lys Lys Ala Gln Leu Asn Ile Gly Asn Val Leu Pro Val Gly Thr Met  
50 55 60

Pro Glu Gly Thr Ile Val Cys Cys Leu Glu Glu Lys Pro Gly Asp Arg  
65 70 75 80

Gly Lys Leu Ala Arg Ala Ser Gly Asn Tyr Ala Thr Val Ile Ser His  
85 90 95

Asn Pro Glu Thr Lys Lys Thr Arg Val Lys Leu Pro Ser Gly Ser Lys  
100 105 110

Lys Val Ile Ser Ser Ala Asn Arg Ala Val Val Gly Val Val Ala Gly  
115 120 125

Gly Gly Arg Ile Asp Lys Pro Ile Leu Lys Ala Gly Arg Ala Tyr His  
130 135 140

Lys Tyr Lys Ala Lys Arg Asn Cys Trp Pro Arg Val Arg Gly Val Ala  
145 150 155 160

Met Asn Pro Val Glu His Pro Phe Gly Gly Gly Asn His Gln His Ile  
165 170 175

Gly Lys Pro Ser Thr Ile Arg Arg Asp Ala Pro Ala Gly Arg Lys Val  
180 185 190

Gly Leu Ile Ala Ala Arg Arg Thr Gly Arg Leu Arg Gly Thr Lys Thr



195

200

205

Val Gln Glu Lys Glu Asn  
210

&lt;210&gt; 201

&lt;211&gt; 190

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 201

Gly Ser Val Phe Arg Ala His Val Lys His Arg Lys Gly Ala Ala Arg  
1 5 10 15

Leu Arg Ala Val Asp Phe Ala Glu Arg His Gly Tyr Ile Lys Gly Ile  
20 25 30

Val Lys Ala Gln Leu Asn Ile Gly Asn Val Leu Pro Val Gly Thr Met  
35 40 45

Pro Glu Gly Thr Ile Val Cys Cys Leu Glu Glu Lys Pro Gly Asp Arg  
50 55 60

Gly Lys Leu Ala Arg Ala Ser Gly Asn Tyr Ala Thr Val Ile Ser His  
65 70 75 80

Asn Pro Glu Thr Lys Lys Thr Arg Val Lys Leu Pro Ser Gly Ser Lys  
85 90 95

Lys Val Ile Ser Ser Ala Asn Arg Ala Val Val Gly Val Val Ala Gly  
100 105 110

Gly Gly Arg Ile Asp Lys Pro Ile Leu Lys Ala Gly Arg Ala Tyr His  
115 120 125

Lys Tyr Lys Ala Lys Arg Asn Cys Trp Pro Arg Val Arg Gly Val Ala  
130 135 140

Met Asn Pro Val Glu His Pro Phe Gly Gly Gly Asn His Gln His Ile  
145 150 155 160

Gly Lys Pro Ser Thr Ile Arg Arg Asp Ala Pro Ala Gly Arg Lys Val  
165 170 175

Gly Leu Ile Ala Ala Arg Arg Thr Gly Arg Leu Arg Gly Thr  
180 185 190

<210> 202  
 <211> 229  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Ribosomal  
 Proteins L2 domain sequence

<400> 202  
 Gly Arg Asn Asn Arg Gly His Ile Thr Arg Arg His Arg Gly Gly Gly  
 1 5 10 15  
 His Lys Arg Leu Tyr Arg Ala Ile Asp Phe Lys Arg Arg Lys Gly Tyr  
 20 25 30  
 Ile Lys Gly Thr Val Lys Arg Ile Glu Tyr Asp Pro Asn Arg Ser Ala  
 35 40 45  
 Pro Ile Ala Leu Val Val Tyr Ser Asp Pro Gly Glu Lys Arg Tyr Ile  
 50 55 60  
 Leu Ala Pro Glu Gly Leu His Val Gly Asp Thr Ile Tyr Ser Gly Lys  
 65 70 75 80  
 Asn Ala Thr Ile Lys Ile Gly Asn Val Leu Pro Leu Gly Glu Ile Pro  
 85 90 95  
 Glu Gly Thr Ile Ile His Asn Val Glu Glu Lys Pro Gly Asp Gly Gly  
 100 105 110  
 Gln Leu Ala Arg Ala Ala Gly Thr Tyr Ala Gln Ile Leu Ala His Asp  
 115 120 125  
 Gly Asp Lys Lys Thr Arg Val Lys Leu Pro Ser Gly Glu Lys Arg Arg  
 130 135 140  
 Val Ser Ser Glu Cys Arg Ala Thr Ile Gly Val Val Ala Asn Gly Gly  
 145 150 155 160  
 Arg Ile Asp Lys Pro Leu Gly Lys Ala Gly Arg Ala Arg Trp Leu Gly  
 165 170 175  
 Lys Arg Pro Arg Val Arg Gly Val Ala Met Asn Pro Val Asp His Pro  
 180 185 190  
 His Gly Gly Gly Glu Gly Arg His Pro Ile Gly Arg Lys Ser Pro Val

195	200	205
Thr Pro Trp Gly Lys Lys Ala Leu Gly Ile Ala Thr Arg Arg Thr Lys		
210	215	220
Arg Leu Ser Asp Lys		
225		
<210> 203		
<211> 519		
<212> PRT		
<213> Homo sapiens		
<400> 203		
Met Ser Val Ser Val Leu Ser Pro Ser Arg Leu Leu Gly Asp Val Ser		
1	5	10 15
Gly Ile Leu Gln Ala Ala Ser Leu Leu Ile Leu Leu Leu Leu Leu Ile		
20	25	30
Lys Ala Val Gln Leu Tyr Leu His Arg Gln Trp Leu Leu Lys Ala Leu		
35	40	45
Gln Gln Phe Pro Cys Pro Pro Ser His Trp Leu Phe Gly His Ile Gln		
50	55	60
Glu Leu Gln Gln Asp Gln Glu Leu Gln Arg Ile Gln Lys Trp Val Glu		
65	70	75 80
Thr Phe Pro Ser Ala Cys Pro His Trp Leu Trp Gly Gly Lys Val Arg		
85	90	95
Val Gln Leu Tyr Asp Pro Asp Tyr Met Lys Val Ile Leu Gly Arg Ser		
100	105	110
Asp Pro Lys Ser His Gly Ser Tyr Arg Phe Leu Ala Pro Trp Ile Gly		
115	120	125
Tyr Gly Leu Leu Leu Leu Asn Gly Gln Thr Trp Phe Gln His Arg Arg		
130	135	140
Met Leu Thr Pro Ala Phe His Tyr Asp Ile Leu Lys Pro Tyr Val Gly		
145	150	155 160
Leu Met Ala Asp Ser Val Arg Val Met Leu Asp Lys Trp Glu Glu Leu		
165	170	175

Leu	Gly	Gln	Asp	Ser	Pro	Leu	Glu	Val	Phe	Gln	His	Val	Ser	Leu	Met	180	185	190
Thr	Leu	Asp	Thr	Ile	Met	Lys	Cys	Ala	Phe	Ser	His	Gln	Gly	Ser	Ile	195	200	205
Gln	Val	Asp	Arg	Asn	Ser	Gln	Ser	Tyr	Ile	Gln	Ala	Ile	Ser	Asp	Leu	210	215	220
Asn	Asn	Leu	Val	Phe	Ser	Arg	Val	Arg	Asn	Ala	Phe	His	Gln	Asn	Asp	225	230	235
Thr	Ile	Tyr	Ser	Leu	Thr	Ser	Ala	Gly	Arg	Trp	Thr	His	Arg	Ala	Cys	245	250	255
Gln	Leu	Ala	His	Gln	His	Thr	Asp	Gln	Val	Ile	Gln	Leu	Arg	Lys	Ala	260	265	270
Gln	Leu	Gln	Lys	Glu	Gly	Glu	Leu	Glu	Lys	Ile	Lys	Arg	Lys	Arg	His	275	280	285
Leu	Asp	Phe	Leu	Asp	Ile	Leu	Leu	Leu	Ala	Lys	Met	Glu	Asn	Gly	Ser	290	295	300
Ile	Leu	Ser	Asp	Lys	Asp	Leu	Arg	Ala	Glu	Val	Asp	Thr	Phe	Met	Phe	305	310	315
Glu	Gly	His	Asp	Thr	Thr	Ala	Ser	Gly	Ile	Ser	Trp	Ile	Leu	Tyr	Ala	325	330	335
Leu	Ala	Thr	His	Pro	Lys	His	Gln	Glu	Arg	Cys	Arg	Glu	Glu	Ile	His	340	345	350
Ser	Leu	Leu	Gly	Asp	Gly	Ala	Ser	Ile	Thr	Trp	Asn	His	Leu	Asp	Gln	355	360	365
Met	Pro	Tyr	Thr	Thr	Met	Cys	Ile	Lys	Glu	Ala	Leu	Arg	Leu	Tyr	Pro	370	375	380
Pro	Val	Pro	Gly	Ile	Gly	Arg	Glu	Leu	Ser	Thr	Pro	Val	Thr	Phe	Pro	385	390	395
Asp	Gly	Arg	Ser	Leu	Pro	Lys	Gly	Ile	Met	Val	Leu	Leu	Ser	Ile	Tyr	405	410	415
Gly	Leu	His	His	Asn	Pro	Lys	Val	Trp	Pro	Asn	Pro	Glu	Val	Phe	Asp	420	425	430

Pro Phe Arg Phe Ala Pro Gly Ser Ala Gln His Ser His Ala Phe Leu  
 435 440 445

Pro Phe Ser Gly Gly Ser Arg Asn Cys Ile Gly Lys Gln Phe Ala Met  
 450 455 460

Asn Glu Leu Lys Val Ala Thr Ala Leu Thr Leu Leu Arg Phe Glu Leu  
 465 470 475 480

Leu Pro Asp Pro Thr Arg Ile Pro Ile Pro Ile Ala Arg Leu Val Leu  
 485 490 495

Lys Ser Lys Asn Gly Ile His Leu Arg Leu Arg Arg Leu Pro Asn Pro  
 500 505 510

Cys Glu Asp Lys Asp Gln Leu  
 515

<210> 204

<211> 509

<212> PRT

<213> Rattus norvegicus

<400> 204

Met Ser Val Ser Ala Leu Ser Ser Thr Arg Phe Thr Gly Ser Ile Ser  
 1 5 10 15

Gly Phe Leu Gln Val Ala Ser Val Leu Gly Leu Leu Leu Leu Val  
 20 25 30

Lys Ala Val Gln Phe Tyr Leu Gln Arg Gln Trp Leu Leu Lys Ala Phe  
 35 40 45

Gln Gln Phe Pro Ser Pro Pro Phe His Trp Phe Phe Gly His Lys Gln  
 50 55 60

Phe Gln Gly Asp Lys Glu Leu Gln Gln Ile Met Thr Cys Val Glu Asn  
 65 70 75 80

Phe Pro Ser Ala Phe Pro Arg Trp Phe Trp Gly Ser Lys Ala Tyr Leu  
 85 90 95

Ile Val Tyr Asp Pro Asp Tyr Met Lys Val Ile Leu Gly Arg Ser Asp  
 100 105 110

Pro Lys Ala Asn Gly Val Tyr Arg Leu Leu Ala Pro Trp Ile Gly Tyr  
 115 120 125

Gly	Leu	Leu	Leu	Leu	Asn	Gly	Gln	Pro	Trp	Phe	Gln	His	Arg	Arg	Met	
130						135					140					
Leu	Thr	Pro	Ala	Phe	His	Tyr	Asp	Ile	Leu	Lys	Pro	Tyr	Val	Lys	Asn	
145					150					155					160	
Met	Ala	Asp	Ser	Ile	Arg	Leu	Met	Leu	Asp	Lys	Trp	Glu	Gln	Leu	Ala	
				165					170					175		
Gly	Gln	Asp	Ser	Ser	Ile	Glu	Ile	Phe	Gln	His	Ile	Ser	Leu	Met	Thr	
			180					185					190			
Leu	Asp	Thr	Val	Met	Lys	Cys	Ala	Phe	Ser	His	Asn	Gly	Ser	Val	Gln	
	195						200					205				
Val	Asp	Gly	Asn	Tyr	Lys	Ser	Tyr	Ile	Gln	Ala	Ile	Gly	Asn	Leu	Asn	
210						215						220				
Asp	Leu	Phe	His	Ser	Arg	Val	Arg	Asn	Ile	Phe	His	Gln	Asn	Asp	Thr	
225					230					235					240	
Ile	Tyr	Asn	Phe	Ser	Ser	Asn	Gly	His	Leu	Phe	Asn	Arg	Ala	Cys	Gln	
				245					250					255		
Leu	Ala	His	Asp	His	Thr	Asp	Gly	Val	Ile	Lys	Leu	Arg	Lys	Asp	Gln	
			260					265					270			
Leu	Gln	Asn	Ala	Gly	Glu	Leu	Glu	Lys	Val	Lys	Lys	Lys	Arg	Arg	Leu	
	275						280						285			
Asp	Phe	Leu	Asp	Ile	Leu	Leu	Leu	Ala	Arg	Met	Glu	Asn	Gly	Asp	Ser	
290						295					300					
Leu	Ser	Asp	Lys	Asp	Leu	Arg	Ala	Glu	Val	Asp	Thr	Phe	Met	Phe	Glu	
305					310					315					320	
Gly	His	Asp	Thr	Thr	Ala	Ser	Gly	Val	Ser	Trp	Ile	Phe	Tyr	Ala	Leu	
				325					330					335		
Ala	Thr	His	Pro	Glu	His	Gln	Gln	Arg	Cys	Arg	Glu	Glu	Val	Gln	Ser	
			340					345					350			
Val	Leu	Gly	Asp	Gly	Ser	Ser	Ile	Thr	Trp	Asp	His	Leu	Asp	Gln	Ile	
	355						360					365				
Pro	Tyr	Thr	Thr	Met	Cys	Ile	Lys	Glu	Ala	Leu	Arg	Leu	Tyr	Pro	Pro	
370						375					380					

Val Pro Gly Ile Val Arg Glu Leu Ser Thr Ser Val Thr Phe Pro Asp  
 385 390 395 400

Gly Arg Ser Leu Pro Lys Gly Ile Gln Val Thr Leu Ser Ile Tyr Gly  
 405 410 415

Leu His His Asn Pro Lys Val Trp Pro Asn Pro Glu Val Phe Asp Pro  
 420 425 430

Ser Arg Phe Ala Pro Asp Ser Pro Arg His Ser His Ser Phe Leu Pro  
 435 440 445

Phe Ser Gly Gly Ala Arg Asn Cys Ile Gly Lys Gln Phe Ala Met Ser  
 450 455 460

Glu Met Lys Val Ile Val Ala Leu Thr Leu Leu Arg Phe Glu Leu Leu  
 465 470 475 480

Pro Asp Pro Thr Lys Val Pro Ile Pro Leu Pro Arg Leu Val Leu Lys  
 485 490 495

Ser Lys Asn Gly Ile Tyr Leu Tyr Leu Lys Lys Leu His  
 500 505

<210> 205

<211> 509

<212> PRT

<213> Mus musculus

<400> 205

Met Ser Val Ser Ala Leu Ser Pro Thr Arg Phe Ala Asp Ser Leu Ser  
 1 5 10 15

Gly Phe Leu Gln Val Ala Ser Val Leu Gly Leu Leu Leu Leu Val  
 20 25 30

Lys Ala Val Gln Phe Tyr Leu His Arg Gln Trp Leu Leu Lys Ala Phe  
 35 40 45

Gln Gln Phe Pro Ser Pro Pro Phe His Trp Phe Phe Gly His Glu Lys  
 50 55 60

Phe Lys Gly Asp Gln Glu Leu Gln Glu Ile Val Ser Cys Ile Glu Asn  
 65 70 75 80

Phe Pro Ser Ala Phe Pro Arg Trp Phe Trp Gly Ser Lys Ala Tyr Leu





340	345	350
Leu Leu Gly Asp Gly Ser Ser Ile Thr Trp Asp His Leu Asp Gln Ile		
355	360	365
Pro Tyr Thr Thr Met Cys Ile Lys Glu Ala Leu Arg Leu Tyr Pro Pro		
370	375	380
Val Pro Gly Ile Val Arg Glu Leu Ser Thr Ser Val Thr Phe Pro Asp		
385	390	395
Gly Arg Ser Leu Pro Lys Gly Val Gln Val Thr Leu Ser Ile Tyr Gly		
405	410	415
Leu His His Asn Pro Lys Val Trp Pro Asn Pro Glu Val Phe Asp Pro		
420	425	430
Ser Arg Phe Ala Pro Asp Ser Pro Arg His Ser His Ser Phe Leu Pro		
435	440	445
Phe Ser Gly Gly Ala Arg Asn Cys Ile Gly Lys Gln Phe Ala Met Ser		
450	455	460
Glu Leu Lys Val Ile Val Ala Leu Thr Leu Leu Arg Phe Glu Leu Leu		
465	470	475
Pro Asp Pro Thr Arg Val Pro Met Pro Leu Ala Arg Leu Val Leu Lys		
485	490	495
Ser Lys Asn Gly Ile Tyr Leu His Leu Lys Lys Leu His		
500	505	

<210> 206

<211> 509

<212> PRT

<213> Mus musculus

<400> 206

Met Ser Val Ser Ala Leu Ser Pro Thr Arg Phe Ala Asp Ser Leu Ser
1 5 10 15
Gly Phe Leu Gln Val Ala Ser Val Leu Gly Leu Leu Leu Leu Leu Val
20 25 30
Lys Ala Val Gln Phe Tyr Leu His Arg Gln Trp Leu Leu Lys Ala Phe
35 40 45



Met Ser Asp Lys Asp Leu Arg Ala Glu Val Asp Thr Phe Met Phe Glu  
 305 310 315 320  
 Gly His Asp Thr Thr Ala Ser Gly Val Ser Trp Ile Phe Tyr Ala Leu  
 325 330 335  
 Ala Thr His Pro Asp His Gln Gln Arg Cys Arg Glu Glu Val Gln Ser  
 340 345 350  
 Leu Leu Gly Asp Gly Ser Ser Ile Thr Trp Asp His Leu Asp Gln Ile  
 355 360 365  
 Pro Tyr Thr Thr Met Cys Ile Lys Glu Ala Leu Arg Leu Tyr Pro Pro  
 370 375 380  
 Val Pro Gly Ile Val Arg Glu Leu Ser Thr Ser Val Thr Phe Pro Asp  
 385 390 395 400  
 Gly Arg Ser Leu Pro Lys Gly Val Gln Val Thr Leu Ser Ile Tyr Gly  
 405 410 415  
 Leu His His Asn Pro Lys Val Trp Pro Asn Pro Glu Val Phe Asp Pro  
 420 425 430  
 Ser Arg Phe Ala Pro Asp Ser Pro Arg His Ser His Ser Phe Leu Pro  
 435 440 445  
 Phe Ser Gly Gly Ala Arg Asn Cys Ile Gly Lys Gln Phe Ala Met Ser  
 450 455 460  
 Glu Leu Lys Val Ile Val Ala Leu Thr Leu Leu Arg Phe Glu Leu Leu  
 465 470 475 480  
 Pro Asp Pro Thr Arg Val Pro Met Pro Leu Ala Arg Leu Val Leu Lys  
 485 490 495  
 Ser Lys Asn Gly Ile Tyr Leu His Leu Lys Lys Leu His  
 500 505

<210> 207

<211> 519

<212> PRT

<213> Homo sapiens

<400> 207

Met Ser Val Ser Val Leu Ser Pro Ser Arg Leu Leu Gly Asp Val Ser  
 1 5 10 15

Gly Ile Leu Gln Ala Ala Ser Leu Leu Ile Leu Leu Leu Leu Leu Ile  
 20 25 30  
 Lys Ala Val Gln Leu Tyr Leu His Arg Gln Trp Leu Leu Lys Ala Leu  
 35 40 45  
 Gln Gln Phe Pro Cys Pro Pro Ser His Trp Leu Phe Gly His Ile Gln  
 50 55 60  
 Glu Leu Gln Gln Asp Gln Glu Leu Gln Arg Ile Gln Lys Trp Val Glu  
 65 70 75 80  
 Thr Phe Pro Ser Ala Cys Pro His Trp Leu Trp Gly Gly Lys Val Arg  
 85 90 95  
 Val Gln Leu Tyr Asp Pro Asp Tyr Met Lys Val Ile Leu Gly Arg Ser  
 100 105 110  
 Asp Pro Lys Ser His Gly Ser Tyr Arg Phe Leu Ala Pro Trp Ile Gly  
 115 120 125  
 Tyr Gly Leu Leu Leu Leu Asn Gly Gln Thr Trp Phe Gln His Arg Arg  
 130 135 140  
 Met Leu Thr Pro Ala Phe His Tyr Asp Ile Leu Lys Pro Tyr Val Gly  
 145 150 155 160  
 Leu Met Ala Asp Ser Val Arg Val Met Leu Asp Lys Trp Glu Glu Leu  
 165 170 175  
 Leu Gly Gln Asp Ser Pro Leu Glu Val Phe Gln His Val Ser Leu Met  
 180 185 190  
 Thr Leu Asp Thr Ile Met Lys Cys Ala Phe Ser His Gln Gly Ser Ile  
 195 200 205  
 Gln Val Asp Arg Asn Ser Gln Ser Tyr Ile Gln Ala Ile Ser Asp Leu  
 210 215 220  
 Asn Asn Leu Val Phe Ser Arg Val Arg Asn Ala Phe His Gln Asn Asp  
 225 230 235 240  
 Thr Ile Tyr Ser Leu Thr Ser Ala Gly Arg Trp Thr His Arg Ala Cys  
 245 250 255  
 Gln Leu Ala His Gln His Thr Asp Gln Val Ile Gln Leu Arg Lys Ala  
 260 265 270

Gln Leu Gln Lys Glu Gly Glu Leu Glu Lys Ile Lys Arg Lys Arg His  
 275 280 285

Leu Asp Phe Leu Asp Ile Leu Leu Leu Ala Lys Met Glu Asn Gly Ser  
 290 295 300

Ile Leu Ser Asp Lys Asp Leu Arg Ala Glu Val Asp Thr Phe Met Phe  
 305 310 315 320

Glu Gly His Asp Thr Thr Ala Ser Gly Ile Ser Trp Ile Leu Tyr Ala  
 325 330 335

Leu Ala Thr His Pro Lys His Gln Glu Arg Cys Arg Glu Glu Ile His  
 340 345 350

Ser Leu Leu Gly Asp Gly Ala Ser Ile Thr Trp Asn His Leu Asp Gln  
 355 360 365

Met Pro Tyr Thr Thr Met Cys Ile Lys Glu Ala Leu Arg Leu Tyr Pro  
 370 375 380

Pro Val Pro Gly Ile Gly Arg Glu Leu Ser Thr Pro Val Thr Phe Pro  
 385 390 395 400

Asp Gly Arg Ser Leu Pro Lys Gly Ile Met Val Leu Leu Ser Ile Tyr  
 405 410 415

Gly Leu His His Asn Pro Lys Val Trp Pro Asn Pro Glu Val Phe Asp  
 420 425 430

Pro Ser Arg Phe Ala Pro Gly Ser Ala Gln His Ser His Ala Phe Leu  
 435 440 445

Pro Phe Ser Gly Gly Ser Arg Asn Cys Ile Gly Lys Gln Phe Ala Met  
 450 455 460

Asn Glu Leu Lys Val Ala Thr Ala Leu Thr Leu Leu Arg Phe Glu Leu  
 465 470 475 480

Leu Pro Asp Pro Thr Arg Ile Pro Ile Pro Ile Ala Arg Leu Val Leu  
 485 490 495

Lys Ser Lys Asn Gly Ile His Leu Arg Leu Arg Arg Leu Pro Asn Pro  
 500 505 510

Cys Glu Asp Lys Asp Gln Leu  
 515

<210> 208

<211> 434

<212> PRT

<213> Homo sapiens

<400> 208

Pro Ala Pro Pro Thr His Trp Phe Leu Gly His Lys Leu Met Glu Lys  
1 5 10 15

Tyr Pro Cys Ala Val Pro Leu Trp Val Gly Pro Phe Thr Met Phe Phe  
20 25 30

Ser Val His Asp Pro Asp Tyr Ala Lys Ile Leu Leu Lys Arg Gln Gly  
35 40 45

Lys Asn Gln Glu Gly Phe Leu Pro Phe Ile Ser Gln Gly Lys Gly Leu  
50 55 60

Ala Ala Leu Asp Gly Pro Lys Trp Phe Gln His Arg Arg Leu Leu Thr  
65 70 75 80

Pro Gly Phe His Phe Asn Ile Leu Lys Ala Tyr Ile Glu Val Met Ala  
85 90 95

His Ser Val Lys Met Met Leu Asn Lys Trp Glu Glu His Ile Ala Gln  
100 105 110

Asn Ser Arg Leu Glu Leu Phe Gln His Val Ser Leu Met Thr Leu Asp  
115 120 125

Ser Ile Met Lys Cys Ala Phe Ser His Gln Gly Ser Ile Gln Leu Asp  
130 135 140

Arg Ser Ser Tyr Leu Lys Ala Val Phe Asn Leu Ser Lys Ile Ser Asn  
145 150 155 160

Gln Arg Met Asn Asn Phe Leu His His Asn Asp Leu Val Phe Lys Phe  
165 170 175

Ser Ser Gln Gly Gln Ile Phe Ser Lys Phe Asn Gln Glu Leu His Gln  
180 185 190

His Leu Glu Lys Val Ile Gln Asp Arg Lys Glu Ser Leu Lys Asp Lys  
195 200 205

Leu Lys Gln Asp Thr Thr Gln Lys Arg Arg Trp Asp Phe Leu Asp Ile

210		215		220	
Leu Leu Ser Ala Lys Val Glu Asn Thr Lys Asp Phe Ser Glu Ala Asp					
225		230		235	240
Leu Gln Ala Glu Val Lys Thr Phe Met Phe Ala Gly His Asp Thr Thr					
	245		250		255
Ser Ser Ala Ile Ser Trp Ile Leu Tyr Cys Leu Ala Lys Tyr Pro Glu					
	260		265		270
His Gln Gln Arg Cys Arg Asp Glu Ile Arg Glu Leu Leu Gly Asp Gly					
	275		280		285
Ser Ser Ile Thr Trp His Leu Ser Gln Met Pro Tyr Thr Thr Met Cys					
	290		295		300
Ile Lys Glu Cys Leu Arg Leu Tyr Ala Pro Val Val Asn Ile Ser Arg					
305		310		315	320
Leu Leu Asp Lys Pro Ile Thr Phe Pro Asp Gly Arg Ser Leu Pro Ala					
	325		330		335
Gly Ile Thr Val Val Leu Ser Ile Trp Gly Leu His His Asn Pro Ala					
	340		345		350
Val Trp Lys Asn Val Gln Val Phe Asp Pro Leu Arg Phe Ser Gln Glu					
	355		360		365
Asn Ser Asp Gln Arg His Pro Tyr Ala Tyr Leu Pro Phe Ser Ala Gly					
	370		375		380
Ser Arg Asn Cys Ile Gly Gln Glu Phe Ala Met Ile Glu Leu Lys Val					
385		390		395	400
Thr Ile Ala Leu Ile Leu Leu His Phe Arg Val Thr Pro Asp Pro Thr					
	405		410		415
Arg Pro Leu Thr Phe Pro Asn His Phe Ile Leu Lys Pro Lys Asn Gly					
	420		425		430
Met Tyr					

<210> 209  
 <211> 440  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cytochrome  
P450 domain sequence

<400> 209

Pro Gly Pro Pro Pro Leu Pro Leu Ile Gly Asn Leu Leu Gln Leu Gly  
1 5 10 15

Arg Gly Pro Ile His Ser Leu Thr Glu Leu Arg Lys Lys Tyr Gly Pro  
20 25 30

Val Phe Thr Leu Tyr Leu Gly Pro Arg Pro Val Val Val Thr Gly  
35 40 45

Pro Glu Ala Val Lys Glu Val Leu Ile Asp Lys Gly Glu Glu Phe Ala  
50 55 60

Gly Arg Gly Asp Phe Pro Val Phe Pro Trp Leu Gly Tyr Gly Ile Leu  
65 70 75 80

Phe Ser Asn Gly Pro Arg Trp Arg Gln Leu Arg Arg Leu Leu Thr Leu  
85 90 95

Arg Phe Phe Gly Met Gly Lys Arg Ser Lys Leu Glu Glu Arg Ile Gln  
100 105 110

Glu Glu Ala Arg Asp Leu Val Glu Arg Leu Arg Lys Glu Gln Gly Ser  
115 120 125

Pro Ile Asp Ile Thr Glu Leu Leu Ala Pro Ala Pro Leu Asn Val Ile  
130 135 140

Cys Ser Leu Leu Phe Gly Val Arg Phe Asp Tyr Glu Asp Pro Glu Phe  
145 150 155 160

Leu Lys Leu Ile Asp Lys Leu Asn Glu Leu Phe Phe Leu Val Ser Pro  
165 170 175

Trp Gly Gln Leu Leu Asp Phe Phe Arg Tyr Leu Pro Gly Ser His Arg  
180 185 190

Lys Ala Phe Lys Ala Ala Lys Asp Leu Lys Asp Tyr Leu Asp Lys Leu  
195 200 205

Ile Glu Glu Arg Arg Glu Thr Leu Glu Pro Gly Asp Pro Arg Asp Phe  
210 215 220



Leu Asp Ser Leu Leu Ile Glu Ala Lys Arg Glu Gly Gly Ser Glu Leu  
 225 230 235 240

Thr Asp Glu Glu Leu Lys Ala Thr Val Leu Asp Leu Leu Phe Ala Gly  
 245 250 255

Thr Asp Thr Thr Ser Ser Thr Leu Ser Trp Ala Leu Tyr Leu Leu Ala  
 260 265 270

Lys His Pro Glu Val Gln Ala Lys Leu Arg Glu Glu Ile Asp Glu Val  
 275 280 285

Ile Gly Arg Asp Arg Ser Pro Thr Tyr Asp Asp Arg Ala Asn Met Pro  
 290 295 300

Tyr Leu Asp Ala Val Ile Lys Glu Thr Leu Arg Leu His Pro Val Val  
 305 310 315 320

Pro Leu Leu Leu Pro Arg Val Ala Thr Glu Asp Thr Glu Ile Asp Gly  
 325 330 335

Tyr Leu Ile Pro Lys Gly Thr Leu Val Ile Val Asn Leu Tyr Ser Leu  
 340 345 350

His Arg Asp Pro Lys Val Phe Pro Asn Pro Glu Glu Phe Asp Pro Glu  
 355 360 365

Arg Phe Leu Asp Glu Asn Gly Lys Phe Lys Lys Ser Tyr Ala Phe Leu  
 370 375 380

Pro Phe Gly Ala Gly Pro Arg Asn Cys Leu Gly Glu Arg Leu Ala Arg  
 385 390 395 400

Met Glu Leu Phe Leu Phe Leu Ala Thr Leu Leu Gln Arg Phe Glu Leu  
 405 410 415

Glu Leu Val Pro Pro Gly Asp Ile Pro Leu Thr Pro Lys Pro Leu Gly  
 420 425 430

Leu Pro Ser Lys Pro Pro Leu Tyr  
 435 440

<210> 210

<211> 153

<212> PRT

<213> Mus musculus

<400> 210

Met Gly Ser Thr Met Glu Pro Pro Gly Gly Ala Tyr Leu His Leu Gly  
1 5 10 15

Ala Val Thr Ser Pro Val Gly Thr Ala Arg Met Leu Gln Leu Ala Phe  
20 25 30

Gly Cys Thr Thr Phe Ser Leu Val Ala His Arg Gly Gly Phe Gly Gly  
35 40 45

Val Gln Gly Thr Phe Cys Met Ala Ala Trp Gly Phe Cys Phe Ala Phe  
50 55 60

Ser Val Leu Val Val Ala Cys Glu Phe Thr Lys Leu His Ser Cys Leu  
65 70 75 80

Arg Leu Ser Trp Gly Asn Phe Thr Ala Ala Phe Ala Met Leu Ala Thr  
85 90 95

Leu Leu Cys Ala Thr Ala Ala Val Ile Tyr Pro Leu Tyr Phe Thr Arg  
100 105 110

Leu Glu Cys Pro Pro Glu Pro Ala Gly Cys Met Val Ala Pro Cys Gln  
115 120 125

Arg Pro Ala Pro Glu Ser Pro Trp Lys Asp Asp Asp Val Met Thr Ala  
130 135 140

Met Glu Tyr Leu Ser Arg His Pro Thr  
145 150

<210> 211

<211> 322

<212> PRT

<213> Homo sapiens

<400> 211

Met Pro Val Thr Val Thr Arg Thr Thr Ile Thr Thr Thr Thr Thr Ser  
1 5 10 15

Ser Ser Gly Leu Gly Ser Pro Met Ile Val Gly Ser Pro Arg Ala Leu  
20 25 30

Thr Gln Pro Leu Gly Leu Leu Arg Leu Leu Gln Leu Val Ser Thr Cys  
35 40 45



Leu Ala Tyr Val Ala Asp Leu Val His Ser Ala His Leu Val Phe Val  
 305 310 315 320

Lys Val

<210> 212

<211> 296

<212> PRT

<213> Mus musculus

<400> 212

Met Pro Val Thr Val Thr Arg Thr Thr Ile Thr Thr Thr Thr Ser Ser  
 1 5 10 15

Ser Thr Thr Val Gly Ser Ala Arg Ala Leu Thr Gln Pro Leu Gly Leu  
 20 25 30

Leu Arg Leu Leu Gln Leu Ile Ser Thr Cys Val Ala Phe Ser Leu Val  
 35 40 45

Ala Ser Val Gly Ala Trp Thr Gly Pro Met Gly Asn Trp Ala Met Phe  
 50 55 60

Thr Trp Cys Phe Cys Phe Ala Val Thr Leu Ile Ile Leu Ile Val Glu  
 65 70 75 80

Leu Gly Gly Leu Gln Ala His Phe Pro Leu Ser Trp Arg Asn Phe Pro  
 85 90 95

Ile Thr Phe Ala Cys Tyr Ala Ala Leu Phe Cys Leu Ser Ser Ser Ile  
 100 105 110

Ile Tyr Pro Thr Thr Tyr Val Gln Phe Leu Ala His Gly Arg Thr Arg  
 115 120 125

Asp His Ala Ile Ala Ala Thr Thr Phe Ser Cys Val Ala Cys Leu Ala  
 130 135 140

Tyr Ala Thr Glu Val Ala Trp Thr Arg Ala Arg Pro Gly Glu Ile Thr  
 145 150 155 160

Gly Tyr Met Ala Thr Val Pro Gly Leu Leu Lys Val Phe Glu Thr Phe  
 165 170 175

Val Ala Cys Ile Ile Phe Ala Phe Ile Gly Glu Pro Leu Leu Tyr Asn  
 180 185 190

Gln Lys Pro Ala Leu Glu Trp Cys Val Ala Val Tyr Ala Ile Cys Phe  
 195 200 205

Ile Leu Ala Gly Val Thr Ile Leu Leu Asn Leu Gly Asp Cys Thr Asn  
 210 215 220

Val Leu Pro Ile Pro Phe Pro Thr Phe Leu Ser Gly Leu Ala Tyr Ser  
 225 230 235 240

Leu Phe Ser Phe Thr Pro Leu Pro Ser Ser Ser Gly Pro Ser Thr Asn  
 245 250 255

Leu Ile Arg Asp Ile Arg Ala Asn Pro Ala Val Gln Trp Ile Gln Ala  
 260 265 270

Ala Leu Val Val Leu Val Ile Tyr Asn Pro Thr Arg Cys Val Ser Gly  
 275 280 285

Thr Asp Asp Trp Arg Cys Pro Ser  
 290 295

<210> 213

<211> 245

<212> PRT

<213> Homo sapiens

<400> 213

Met Thr Leu Val Ile Leu Leu Val Glu Leu Gly Gly Ser Gln Ala Arg  
 1 5 10 15

Phe Pro Leu Phe Trp Arg Asn Phe Pro Ile Thr Phe Ala Cys Tyr Ala  
 20 25 30

Ala Leu Leu Cys Leu Ser Ala Ser Ile Ile Tyr Pro Thr Thr Tyr Leu  
 35 40 45

Gln Phe Leu Ser His Gly Arg Ser Arg Asp His Ala Ile Ala Ala Ile  
 50 55 60

Val Phe Ser Gly Ile Ala Cys Val Ala Tyr Ala Thr Glu Val Thr Trp  
 65 70 75 80

Thr Arg Ala Arg Pro Gly Glu Ile Thr Asp Tyr Met Ala Ser Glu Leu  
 85 90 95

Gly Leu Leu Lys Val Leu Glu Thr Phe Val Ala Cys Leu Ile Phe Val

100	105	110
Phe Ile Asn Ser Pro Tyr Val	Tyr His Asn Arg Pro Ala Leu Glu Trp	
115	120	125
Cys Val Ala Val Tyr Ala Leu Cys Phe Val Leu Ala Ala Leu Thr Val		
130	135	140
Leu Leu Ser Leu Gly His Cys Thr Asn Met Leu Pro Ile Arg Phe Pro		
145	150	155
Ser Phe Leu Leu Gly Leu Ala Leu Leu Ser Val Leu Leu Tyr Ala Thr		
165	170	175
Ala Leu Val Leu Trp Pro Leu Tyr Gln Phe Asn Glu Lys Tyr Gly Val		
180	185	190
Gln Pro Trp Gln Thr Arg Asp Val Ser Cys Ser Asp Arg Asn Pro Tyr		
195	200	205
Leu Val Cys Ile Trp Asp Arg Arg Leu Ala Val Thr Asn Leu Thr Ala		
210	215	220
Val Asn Leu Leu Ala Tyr Val Gly Asp Leu Val Tyr Ser Ala His Leu		
225	230	235
Val Phe Val Lys Val		
245		

<210> 214

<211> 331

<212> PRT

<213> Homo sapiens

<400> 214

Met Ala Arg Gln Arg Glu Glu Lys Arg Arg Thr Glu Gln Gly Phe Gly
1 5 10 15
Leu Lys Cys Ser Arg Leu Ile Ile Leu Pro Asn Ile Arg Ile Ile Tyr
20 25 30
Lys Phe Arg Ile Tyr Thr Cys Thr Leu Ser Glu Asn Thr Glu Asn Leu
35 40 45
Ala Leu Cys Ser Ser Asn Asn Gln Thr Lys Leu Asn Gln Thr Met Gln
50 55 60

Met	Leu	Lys	Pro	Asp	Leu	Phe	Ser	Val	Ser	Ser	Ser	Ala	Arg	Thr	Ala	
65					70					75					80	
Ala	Met	Pro	Val	Thr	Val	Thr	His	Pro	Thr	Val	Thr	Thr	Thr	Met	Arg	
				85					90					95		
Ser	Pro	Thr	Val	Val	Gly	Ser	Ser	Arg	Ala	Leu	Ile	Gln	Pro	Leu	Gly	
			100					105					110			
Leu	Leu	Arg	Leu	Leu	Gln	Leu	Val	Ser	Thr	Cys	Val	Ala	Leu	Ser	Leu	
		115					120					125				
Val	Ala	Ser	Cys	Phe	Cys	Phe	Ala	Met	Thr	Leu	Val	Ile	Leu	Leu	Val	
	130					135					140					
Glu	Leu	Gly	Gly	Ser	Gln	Ala	Arg	Phe	Pro	Leu	Phe	Trp	Arg	Asn	Phe	
145					150					155					160	
Pro	Ile	Thr	Phe	Ala	Cys	Tyr	Ala	Ala	Leu	Leu	Cys	Leu	Ser	Ala	Ser	
				165					170					175		
Ile	Ile	Tyr	Pro	Thr	Thr	Tyr	Leu	Gln	Phe	Leu	Ser	His	Gly	Arg	Ser	
		180						185					190			
Arg	Asp	His	Ala	Ile	Ala	Ala	Ile	Val	Phe	Ser	Gly	Ile	Ala	Cys	Val	
	195						200					205				
Ala	Tyr	Ala	Thr	Glu	Val	Thr	Trp	Thr	Arg	Ala	Arg	Pro	Gly	Glu	Ile	
	210					215					220					
Thr	Asp	Tyr	Met	Ala	Ser	Glu	Leu	Gly	Leu	Leu	Lys	Val	Leu	Glu	Thr	
225					230					235				240		
Phe	Val	Ala	Cys	Leu	Ile	Phe	Val	Phe	Ile	Asn	Ser	Pro	Tyr	Val	Tyr	
				245				250						255		
His	Asn	Arg	Pro	Ala	Leu	Glu	Trp	Trp	Val	Ala	Val	Tyr	Ala	Leu	Cys	
			260					265					270			
Phe	Val	Leu	Ala	Ala	Leu	Thr	Ile	Leu	Leu	Ser	Leu	Gly	His	Cys	Thr	
	275						280					285				
Asn	Met	Leu	Pro	Ile	Arg	Phe	Pro	Ser	Phe	Leu	Leu	Gly	Leu	Ala	Leu	
	290					295					300					
Leu	Ser	Val	Leu	Leu	Tyr	Ala	Thr	Ala	Leu	Val	Leu	Trp	Pro	Leu	Tyr	
305					310					315					320	

Gln Phe Asn Glu Asn Pro Gly Arg Arg Glu Met  
 325 330

<210> 215

<211> 365

<212> PRT

<213> Homo sapiens

<400> 215

Met Gly Tyr Cys Gln Gly Val Ser Gln Val Ala Val Val Leu Leu Met  
 1 5 10 15

Phe Pro Lys Glu Lys Glu Ala Phe Leu Ala Leu Ala Gln Leu Leu Thr  
 20 25 30

Ser Lys Asn Leu Pro Asp Thr Val Asp Gly Gln Leu Pro Met Gly Pro  
 35 40 45

His Ser Arg Ala Ser Gln Val Ala Pro Glu Thr Thr Ser Ser Lys Val  
 50 55 60

Asp Arg Gly Val Ser Thr Val Cys Gly Lys Pro Lys Val Val Gly Lys  
 65 70 75 80

Ile Tyr Gly Gly Arg Asp Ala Ala Ala Gly Gln Trp Pro Trp Gln Ala  
 85 90 95

Ser Leu Leu Tyr Trp Gly Ser His Leu Cys Gly Ala Val Leu Ile Asp  
 100 105 110

Ser Cys Trp Leu Val Ser Thr Thr His Cys Phe Leu Lys Thr Ser Ser  
 115 120 125

Ser Phe Ile Leu Ser Ser Gly Arg Glu Phe Pro Gly Pro Cys Val Cys  
 130 135 140

Leu Leu Asn Pro Asp Met Arg Glu Ser Ile Gly Ser Val Cys Ala Gly  
 145 150 155 160

His Leu Gln Gly Phe Ser Ser Val Cys Thr Met Leu Leu Lys Ser Gln  
 165 170 175

Ala Pro Lys Asn Tyr Gln Val Leu Leu Gly Asn Ile Gln Leu Tyr His  
 180 185 190

Gln Thr Gln His Thr Gln Lys Met Ser Val His Arg Ile Ile Thr His  
 195 200 205



Pro Asp Phe Glu Lys Leu His Pro Phe Gly Ser Asp Ile Ala Met Leu  
 210 215 220

Gln Leu His Leu Pro Met Asn Phe Thr Ser Tyr Ile Val Pro Val Cys  
 225 230 235 240

Leu Pro Ser Arg Asp Met Gln Leu Pro Met Gln Leu Ser Pro Pro Phe  
 245 250 255

Tyr Leu Gln Glu Gly Lys Gly Asp Ser Gly Gly Pro Leu Val Cys Tyr  
 260 265 270

Leu Pro Ser Ala Trp Val Leu Val Gly Leu Ala Ser Trp Gly Leu Asp  
 275 280 285

Cys Arg His Pro Ala Tyr Pro Ser Ile Phe Thr Arg Val Thr Tyr Phe  
 290 295 300

Ile Asn Trp Ile Asp Lys Ile Met Arg Leu Thr Pro Leu Ser Asp Pro  
 305 310 315 320

Ala Leu Ala Pro His Thr Cys Ser Pro Pro Lys Pro Leu Arg Ala Ala  
 325 330 335

Gly Leu Pro Gly Pro Cys Ala Ala Leu Val Leu Pro Gln Thr Trp Leu  
 340 345 350

Leu Leu Pro Leu Thr Leu Arg Ala Pro Trp Gln Thr Leu  
 355 360 365

<210> 216

<211> 148

<212> PRT

<213> Homo sapiens

<400> 216

Cys Gly Lys Pro Lys Val Val Gly Lys Ile Tyr Gly Gly Arg Asp Ala  
 1 5 10 15

Ala Ala Gly Gln Trp Pro Trp Gln Ala Ser Leu Leu Tyr Trp Gly Ser  
 20 25 30

His Leu Cys Gly Ala Val Leu Ile Asp Ser Cys Trp Leu Val Ser Thr  
 35 40 45

Thr His Cys Phe Leu Asn Lys Ser Gln Ala Pro Lys Asn Tyr Gln Val

50                      55                      60  
 Leu Leu Gly Asn Ile Gln Leu Tyr His Gln Thr Gln His Thr Gln Lys  
 65                      70                      75                      80  
 Met Ser Val His Arg Ile Ile Thr His Pro Asp Phe Glu Lys Leu His  
                     85                      90                      95  
 Pro Phe Gly Ser Asp Ile Ala Met Leu Gln Leu His Leu Pro Met Asn  
                     100                      105                      110  
 Phe Thr Ser Tyr Ile Val Pro Val Cys Leu Pro Ser Arg Asp Met Gln  
                     115                      120                      125  
 Leu Pro Ser Asn Val Ser Cys Trp Ile Thr Gly Trp Gly Met Ala Ile  
                     130                      135                      140  
 Leu Gly Gly Leu  
 145

<210> 217  
 <211> 367  
 <212> PRT  
 <213> Mus musculus

<400> 217  
 Met Trp Gly Ser Arg Ala Gln Gln Ser Gly Pro Asp Arg Gly Gly Ala  
   1                      5                      10                      15  
 Cys Leu Leu Ala Ala Phe Leu Leu Cys Phe Ser Leu Leu His Ala Gln  
                     20                      25                      30  
 Asp Tyr Thr Pro Ser Gln Thr Pro Pro Pro Thr Ser Asn Thr Ser Leu  
                     35                      40                      45  
 Lys Pro Arg Gly Arg Val Gln Lys Glu Leu Cys Gly Lys Thr Lys Phe  
                     50                      55                      60  
 Gln Gly Lys Ile Tyr Gly Gly Gln Ile Ala Lys Ala Glu Arg Trp Pro  
   65                      70                      75                      80  
 Trp Gln Ala Ser Leu Ile Phe Arg Gly Arg His Ile Cys Gly Ala Val  
                     85                      90                      95  
 Leu Ile Asp Lys Thr Trp Leu Leu Ser Ala Ala His Cys Phe Gln Arg  
                     100                      105                      110

Ser Leu Thr Pro Ser Asp Tyr Arg Ile Leu Leu Gly Tyr Asn Gln Leu  
 115 120 125

Ser Asn Pro Ser Asn Tyr Ser Arg Gln Met Thr Val Asn Lys Val Ile  
 130 135 140

Leu His Glu Asp Tyr Ser Lys Leu Ser Arg Leu Glu Lys Asn Ile Val  
 145 150 155 160

Leu Ile Gln Leu His His Pro Val Ile Tyr Ser Thr His Ile Phe Pro  
 165 170 175

Ala Cys Val Pro Asp Gly Thr Thr Lys Val Ser Pro Asn Asn Leu Cys  
 180 185 190

Trp Ile Ser Gly Trp Gly Met Leu Ser Ala Asp Lys Phe Leu Gln Ala  
 195 200 205

Pro Phe Pro Leu Leu Asp Ala Glu Val Ser Leu Ile Asp Glu Glu Glu  
 210 215 220

Cys Thr Thr Phe Phe Gln Thr Pro Glu Val Ser Ile Thr Glu Tyr Asp  
 225 230 235 240

Val Ile Lys Asp Asp Val Leu Cys Ala Gly Asp Leu Thr Asn Gln Lys  
 245 250 255

Ser Ser Cys Arg Gly Asp Ser Gly Gly Pro Leu Val Cys Phe Leu Asn  
 260 265 270

Ser Phe Trp Tyr Val Val Gly Leu Ala Asn Trp Asn Gly Ala Cys Leu  
 275 280 285

Glu Pro Ile His Ser Pro Asn Ile Phe Thr Lys Val Ser Tyr Phe Ser  
 290 295 300

Asp Trp Ile Lys Gln Lys Lys Ala Asn Thr Pro Ala Ala Asp Val Ser  
 305 310 315 320

Ser Ala Pro Leu Glu Glu Met Ala Ser Ser Leu Arg Gly Trp Gly Asn  
 325 330 335

Tyr Ser Ala Gly Ile Thr Leu Lys Pro Arg Ile Ser Thr Thr Leu Leu  
 340 345 350

Ser Ser Gln Ala Leu Leu Leu Gln Ser Ile Trp Leu Arg Ile Leu  
 355 360 365

<210> 218

<211> 366

<212> PRT

<213> Mus musculus

<400> 218

Met Cys Gly Val Arg Ala Lys Lys Ser Gly Leu Ser Gly Tyr Gly Ala  
1 5 10 15

Gly Leu Leu Ala Ala Leu Leu Gly Val Ser Phe Leu Ser Gln His Ala  
20 25 30

Gln Thr Ala Glu Pro Thr Asn Val Thr Asn Ala Ala Asn Asn Thr Thr  
35 40 45

Ile Gln Ile Met Lys Ser Thr Leu Ser Leu Ser Glu Val Cys Gly Lys  
50 55 60

Thr Lys Phe Gln Gly Lys Ile Tyr Gly Gly Gln Ile Ala Gly Ala Glu  
65 70 75 80

Arg Trp Pro Trp Gln Ala Ser Leu Arg Leu Tyr Gly Arg His Ile Cys  
85 90 95

Gly Ala Val Leu Ile Asp Lys Asn Trp Val Leu Gly Ala Ala His Cys  
100 105 110

Phe Gln Arg Ser Gln Glu Pro Ser Asp Tyr His Val Met Leu Gly Tyr  
115 120 125

Thr Asp Leu Asn Ser Pro Thr Arg Tyr Ser Arg Thr Met Ser Val Gln  
130 135 140

Lys Val Ile Val His Lys Asp Tyr Asn Arg Phe His Thr Gln Gly Ser  
145 150 155 160

Asp Ile Val Leu Leu Gln Leu Arg Ser Ser Val Glu Tyr Ser Ser His  
165 170 175

Ile Leu Pro Ala Cys Val Pro Glu Glu Asn Ile Lys Ile Pro Lys Glu  
180 185 190

Lys Ala Cys Trp Ala Ser Gly Trp Gly Tyr Leu Arg Glu Asp Val Arg  
195 200 205

Ile Pro Leu Pro Asn Glu Leu Tyr Glu Ala Glu Leu Ile Ile Met Ser  
210 215 220

Asn Asp Gln Cys Lys Gly Phe Phe Pro Pro Pro Val Pro Gly Ser Ser  
 225 230 235 240

Arg Ser Tyr Tyr Ile Tyr Asp Asp Met Val Cys Ala Ala Asp Tyr Asp  
 245 250 255

Met Ser Lys Ser Ile Cys Ala Gly Asp Ser Gly Gly Pro Leu Val Cys  
 260 265 270

Leu Leu Glu Gly Ser Trp Tyr Val Val Gly Leu Thr Ser Trp Ser Ser  
 275 280 285

Thr Cys Glu Glu Pro Ile Val Ser Pro Ser Val Phe Ala Arg Val Ser  
 290 295 300

Tyr Phe Asp Lys Trp Ile Lys Asp Asn Lys Lys Ser Ser Ser Asn Ser  
 305 310 315 320

Lys Pro Gly Glu Ser Pro His His Pro Gly Ser Pro Glu Asn Glu Asn  
 325 330 335

Pro Glu Gly Asn Asn Lys Asn Gln Gly Thr Val Ile Lys Pro Val Cys  
 340 345 350

Thr Ala Leu Leu Leu Ser Gln Thr Leu Leu Gln Gln Leu Ile  
 355 360 365

<210> 219

<211> 389

<212> PRT

<213> *Xenopus laevis*

<400> 219

Met Leu Gln Tyr Leu Ser Phe Val Leu Ile Phe Ile His His Gln Ala  
 1 5 10 15

Cys Gly Val Pro Val Ile Ser Asn Arg Ile Val Gly Gly Met Asp Ser  
 20 25 30

Lys Arg Gly Glu Trp Pro Trp Gln Ile Ser Leu Ser Tyr Lys Ser Asp  
 35 40 45

Ser Ile Cys Gly Gly Ser Leu Leu Thr Asp Ser Trp Val Met Thr Ala  
 50 55 60

Ala His Cys Ile Asp Ser Leu Asp Val Ser Tyr Tyr Thr Val Tyr Leu



				325						330					335				
Thr	Thr	Met	Asn	Glu	Thr	Phe	Ser	Leu	Val	Ser	Ser	Thr	Ile	Ser	Thr				
			340					345					350						
Ala	Leu	Arg	Ile	Asn	Glu	Thr	Lys	Thr	Ile	Asp	Asn	Glu	Ala	Gln	Ile				
		355					360					365							
His	Ala	Cys	Ser	Leu	His	Thr	Ile	Ala	Leu	Thr	Leu	Ile	Tyr	Leu	Phe				
	370					375					380								
Ile	Arg	Phe	Phe	Val															
385																			

<210> 220

<211> 186

<212> PRT

<213> Homo sapiens

<400> 220

Lys	Ile	Tyr	Gly	Gly	Arg	Asp	Ala	Ala	Ala	Gly	Gln	Trp	Pro	Trp	Gln				
1				5					10					15					
Ala	Ser	Leu	Leu	Tyr	Trp	Gly	Ser	His	Leu	Cys	Gly	Ala	Val	Leu	Ile				
			20					25						30					
Asp	Ser	Cys	Trp	Leu	Val	Ser	Thr	Thr	His	Cys	Phe	Lys	Ser	Gln	Ala				
		35					40					45							
Pro	Lys	Asn	Tyr	Gln	Val	Leu	Leu	Gly	Asn	Ile	Gln	Leu	Tyr	His	Gln				
	50					55					60								
Thr	Gln	His	Thr	Gln	Lys	Met	Ser	Val	His	Arg	Ile	Ile	Thr	His	Pro				
65					70					75					80				
Asp	Phe	Glu	Lys	Leu	His	Pro	Phe	Gly	Ser	Asp	Ile	Ala	Met	Leu	Gln				
				85					90					95					
Leu	His	Leu	Pro	Met	Asn	Phe	Thr	Ser	Tyr	Ile	Val	Pro	Val	Cys	Leu				
			100					105						110					
Pro	Ser	Arg	Asp	Met	Gln	Leu	Pro	Ser	Asn	Val	Ser	Cys	Trp	Ile	Thr				
		115					120					125							
Gly	Trp	Gly	Met	Leu	Thr	Glu	Asp	Leu	Cys	Ser	Gln	Gly	Asp	Ser	Gly				
	130					135					140								

Gly Pro Leu Val Cys Tyr Leu Pro Ser Ala Trp Val Leu Val Gly Leu  
 145 150 155 160

Ala Ser Trp Gly Leu Asp Cys Arg His Pro Ala Tyr Pro Ser Ile Phe  
 165 170 175

Thr Arg Val Thr Tyr Phe Ile Asn Trp Ile  
 180 185

<210> 221

<211> 230

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Trypsin-like  
 serine protease domain sequence

<400> 221

Arg Ile Val Gly Gly Ser Glu Ala Asn Ile Gly Ser Phe Pro Trp Gln  
 1 5 10 15

Val Ser Leu Gln Tyr Arg Gly Gly Arg His Phe Cys Gly Gly Ser Leu  
 20 25 30

Ile Ser Pro Arg Trp Val Leu Thr Ala Ala His Cys Val Tyr Gly Ser  
 35 40 45

Ala Pro Ser Ser Ile Arg Val Arg Leu Gly Ser His Asp Leu Ser Ser  
 50 55 60

Gly Glu Glu Thr Gln Thr Val Lys Val Ser Lys Val Ile Val His Pro  
 65 70 75 80

Asn Tyr Asn Pro Ser Thr Tyr Asp Asn Asp Ile Ala Leu Leu Lys Leu  
 85 90 95

Ser Glu Pro Val Thr Leu Ser Asp Thr Val Arg Pro Ile Cys Leu Pro  
 100 105 110

Ser Ser Gly Tyr Asn Val Pro Ala Gly Thr Thr Cys Thr Val Ser Gly  
 115 120 125

Trp Gly Arg Thr Ser Glu Ser Ser Gly Ser Leu Pro Asp Thr Leu Gln  
 130 135 140

Glu Val Asn Val Pro Ile Val Ser Asn Ala Thr Cys Arg Arg Ala Tyr



145                      150                      155                      160  
 Ser Gly Gly Pro Ala Ile Thr Asp Asn Met Leu Cys Ala Gly Gly Leu  
                                  165                      170                      175  
 Glu Gly Gly Lys Asp Ala Cys Gln Gly Asp Ser Gly Gly Pro Leu Val  
                                  180                      185                      190  
 Cys Asn Asp Pro Arg Trp Val Leu Val Gly Ile Val Ser Trp Gly Ser  
                                  195                      200                      205  
 Tyr Gly Cys Ala Arg Pro Asn Lys Pro Gly Val Tyr Thr Arg Val Ser  
                                  210                      215                      220  
 Ser Tyr Leu Asp Trp Ile  
 225                      230

<210> 222  
 <211> 230  
 <212> PRT  
 <213> Homo sapiens

<400> 222  
 Arg Ile Val Gly Gly Ser Glu Ala Asn Ile Gly Ser Phe Pro Trp Gln  
   1                      5                      10                      15  
 Val Ser Leu Gln Tyr Arg Gly Gly Arg His Phe Cys Gly Gly Ser Leu  
                                  20                      25                      30  
 Ile Ser Pro Arg Trp Val Leu Thr Ala Ala His Cys Val Tyr Gly Ser  
                                  35                      40                      45  
 Ala Pro Ser Ser Ile Arg Val Arg Leu Gly Ser His Asp Leu Ser Ser  
                                  50                      55                      60  
 Gly Glu Glu Thr Gln Thr Val Lys Val Ser Lys Val Ile Val His Pro  
   65                      70                      75                      80  
 Asn Tyr Asn Pro Ser Thr Tyr Asp Asn Asp Ile Ala Leu Leu Lys Leu  
                                  85                      90                      95  
 Ser Glu Pro Val Thr Leu Ser Asp Thr Val Arg Pro Ile Cys Leu Pro  
                                  100                      105                      110  
 Ser Ser Gly Tyr Asn Val Pro Ala Gly Thr Thr Cys Thr Val Ser Gly  
                                  115                      120                      125

Trp Gly Arg Thr Ser Glu Ser Ser Gly Ser Leu Pro Asp Thr Leu Gln  
 130 135 140

Glu Val Asn Val Pro Ile Val Ser Asn Ala Thr Cys Arg Arg Ala Tyr  
 145 150 155 160

Ser Gly Gly Pro Ala Ile Thr Asp Asn Met Leu Cys Ala Gly Gly Leu  
 165 170 175

Glu Gly Gly Lys Asp Ala Cys Gln Gly Asp Ser Gly Gly Pro Leu Val  
 180 185 190

Cys Asn Asp Pro Arg Trp Val Leu Val Gly Ile Val Ser Trp Gly Ser  
 195 200 205

Tyr Gly Cys Ala Arg Pro Asn Lys Pro Gly Val Tyr Thr Arg Val Ser  
 210 215 220

Ser Tyr Leu Asp Trp Ile  
 225 230

<210> 223

<211> 217

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Trypsin-like  
 serine protease domain sequence

<400> 223

Ile Val Gly Gly Arg Glu Ala Gln Ala Gly Ser Phe Pro Trp Gln Val  
 1 5 10 15

Ser Leu Gln Val Ser Ser Gly His Phe Cys Gly Gly Ser Leu Ile Ser  
 20 25 30

Glu Asn Trp Val Leu Thr Ala Ala His Cys Val Ser Gly Ala Ser Ser  
 35 40 45

Val Arg Val Val Leu Gly Glu His Asn Leu Gly Thr Thr Glu Gly Thr  
 50 55 60

Glu Gln Lys Phe Asp Val Lys Lys Ile Ile Val His Pro Asn Tyr Asn  
 65 70 75 80

Pro Asp Thr Asn Asp Ile Ala Leu Leu Lys Leu Lys Ser Pro Val Thr



Val	Ala	Ser	Leu	Lys	Asp	Met	Val	Phe	Leu	Asp	Tyr	Gly	Phe	Pro	Pro		
				85					90					95			
Val	Leu	Gln	Gln	Trp	Val	Ile	Gly	Gln	Arg	Leu	Ala	Arg	Asp	Gln	Glu		
			100					105					110				
Thr	Leu	His	Ser	His	Gly	Val	Arg	Gln	Asn	Gly	Asp	Ser	Ala	Tyr	Leu		
		115					120					125					
Tyr	Leu	Leu	Ser	Ala	Arg	Asn	Thr	Ser	Leu	Asn	Pro	Gln	Glu	Leu	Gln		
	130					135					140						
Arg	Glu	Arg	Gln	Leu	Arg	Met	Leu	Glu	Asp	Leu	Gly	Phe	Lys	Asp	Leu		
145					150					155					160		
Thr	Leu	Gln	Pro	Arg	Gly	Pro	Leu	Glu	Pro	Gly	Pro	Pro	Lys	Pro	Gly		
				165					170					175			
Val	Pro	Gln	Glu	Pro	Gly	Arg	Gly	Gln	Pro	Asp	Ala	Val	Pro	Glu	Pro		
		180						185					190				
Pro	Pro	Val	Gly	Trp	Gln	Cys	Pro	Gly	Cys	Thr	Phe	Ile	Asn	Lys	Pro		
		195					200					205					
Thr	Arg	Pro	Gly	Cys	Glu	Met	Cys	Cys	Arg	Ala	Arg	Pro	Glu	Ala	Tyr		
	210					215					220						
Gln	Val	Pro	Ala	Ser	Tyr	Gln	Pro	Asp	Glu	Glu	Glu	Arg	Ala	Arg	Leu		
225					230					235					240		
Ala	Gly	Glu	Glu	Glu	Ala	Leu	Arg	Gln	Tyr	Gln	Gln	Arg	Lys	Gln	Gln		
				245					250					255			
Gln	Gln	Glu	Gly	Asn	Tyr	Leu	Gln	His	Val	Gln	Leu	Asp	Gln	Arg	Ser		
			260					265					270				
Leu	Val	Leu	Asn	Thr	Glu	Pro	Ala	Glu	Cys	Pro	Val	Cys	Tyr	Ser	Val		
		275					280					285					
Leu	Ala	Pro	Gly	Glu	Ala	Val	Val	Leu	Arg	Glu	Cys	Leu	His	Thr	Phe		
	290					295					300						
Cys	Arg	Glu	Cys	Leu	Gln	Gly	Thr	Ile	Arg	Asn	Ser	Gln	Glu	Ala	Glu		
305					310					315					320		
Val	Ser	Cys	Pro	Phe	Ile	Asp	Asn	Thr	Tyr	Ser	Cys	Ser	Gly	Lys	Leu		
				325					330					335			

Leu Glu Arg Glu Ile Lys Ala Leu Leu Thr Pro Glu Asp Tyr Gln Arg  
 340 345 350  
 Phe Leu Asp Leu Gly Ile Ser Ile Ala Glu Asn Arg Ser Ala Phe Ser  
 355 360 365  
 Tyr His Cys Lys Thr Pro Asp Cys Lys Gly Trp Cys Phe Phe Glu Asp  
 370 375 380  
 Asp Val Asn Glu Phe Thr Cys Pro Val Cys Phe His Val Asn Cys Leu  
 385 390 395 400  
 Leu Cys Lys Ala Ile His Glu Gln Met Asn Cys Lys Glu Tyr Gln Glu  
 405 410 415  
 Asp Leu Ala Leu Arg Ala Gln Asn Asp Val Ala Ala Arg Gln Thr Thr  
 420 425 430  
 Glu Met Leu Lys Val Met Leu Gln Gln Gly Glu Ala Met Arg Cys Pro  
 435 440 445  
 Gln Cys Gln Ile Val Val Gln Lys Lys Asp Gly Cys Asp Trp Ile Arg  
 450 455 460  
 Cys Thr Val Cys His Thr Glu Ile Cys Trp Val Thr Lys Gly Pro Arg  
 465 470 475 480  
 Trp Gly Pro Gly Gly Pro Gly Asp Thr Ser Gly Gly Cys Arg Cys Arg  
 485 490 495  
 Val Asn Gly Ile Pro Cys His Pro Ser Cys Gln Asn Cys His  
 500 505 510

<210> 225

<211> 500

<212> PRT

<213> Homo sapiens

<400> 225

Met Ala Leu Ser Leu Thr Arg Ala Val Ala Gly Gly Asp Glu Gln Val  
 1 5 10 15  
 Ala Met Lys Cys Ala Ile Trp Leu Ala Glu Gln Arg Val Pro Leu Ser  
 20 25 30  
 Val Gln Leu Lys Pro Glu Val Ser Pro Thr Gln Asp Ile Arg Leu Trp  
 35 40 45



Asn Ser Gln Glu Ala Glu Val Ser Cys Pro Phe Ile Asp Asn Thr Tyr  
 305 310 315 320  
 Ser Cys Ser Gly Lys Leu Leu Glu Arg Glu Ile Lys Ala Leu Leu Thr  
 325 330 335  
 Pro Glu Asp Tyr Gln Arg Phe Leu Asp Leu Gly Ile Ser Ile Ala Glu  
 340 345 350  
 Asn Arg Ser Ala Phe Ser Tyr His Cys Lys Thr Pro Asp Cys Lys Gly  
 355 360 365  
 Trp Cys Phe Phe Glu Asp Asp Val Asn Glu Phe Thr Cys Pro Val Cys  
 370 375 380  
 Phe His Val Asn Cys Leu Leu Cys Lys Ala Ile His Glu Gln Met Asn  
 385 390 395 400  
 Cys Lys Glu Tyr Gln Glu Asp Leu Ala Leu Arg Ala Gln Asn Asp Val  
 405 410 415  
 Ala Ala Arg Gln Thr Thr Glu Met Leu Lys Val Met Leu Gln Gln Gly  
 420 425 430  
 Glu Ala Met Arg Cys Pro Gln Cys Gln Ile Val Val Gln Lys Lys Asp  
 435 440 445  
 Gly Cys Asp Trp Ile Arg Cys Thr Val Cys His Thr Glu Ile Cys Trp  
 450 455 460  
 Val Thr Lys Gly Pro Arg Trp Gly Pro Gly Gly Pro Gly Asp Thr Ser  
 465 470 475 480  
 Gly Gly Cys Arg Cys Arg Val Asn Gly Ile Pro Cys His Pro Ser Cys  
 485 490 495  
 Gln Asn Cys His  
 500

<210> 226

<211> 468

<212> PRT

<213> Homo sapiens

<400> 226

Met Gly Thr Ala Thr Pro Asp Gly Arg Glu Asp Gln Glu Arg Leu Trp

1		5		10		15									
Val	Ser	Val	Glu	Asp	Ala	Gln	Met	His	Thr	Val	Thr	Ile	Trp	Leu	Thr
		20						25					30		
Val	Arg	Pro	Asp	Met	Thr	Val	Ala	Ser	Leu	Lys	Asp	Met	Val	Phe	Leu
		35					40					45			
Asp	Tyr	Gly	Phe	Pro	Pro	Val	Leu	Gln	Gln	Trp	Val	Ile	Gly	Gln	Arg
	50					55					60				
Leu	Ala	Arg	Asp	Gln	Glu	Thr	Leu	His	Ser	His	Gly	Val	Arg	Gln	Asn
65					70					75					80
Gly	Asp	Ser	Ala	Tyr	Leu	Tyr	Leu	Leu	Ser	Ala	Arg	Asn	Thr	Ser	Leu
			85						90					95	
Asn	Pro	Gln	Glu	Leu	Gln	Arg	Glu	Arg	Gln	Leu	Arg	Met	Leu	Glu	Asp
		100						105					110		
Leu	Gly	Phe	Lys	Asp	Leu	Thr	Leu	Gln	Pro	Arg	Gly	Pro	Leu	Glu	Pro
	115						120					125			
Gly	Pro	Pro	Lys	Pro	Gly	Val	Pro	Gln	Glu	Pro	Gly	Arg	Gly	Gln	Pro
	130					135					140				
Asp	Ala	Val	Pro	Glu	Pro	Pro	Pro	Val	Gly	Trp	Gln	Cys	Pro	Gly	Cys
145				150						155					160
Thr	Phe	Ile	Asn	Lys	Pro	Thr	Arg	Pro	Gly	Cys	Glu	Met	Cys	Cys	Arg
			165						170					175	
Ala	Arg	Pro	Glu	Ala	Tyr	Gln	Val	Pro	Ala	Ser	Tyr	Gln	Pro	Asp	Glu
		180						185					190		
Glu	Glu	Arg	Ala	Arg	Leu	Ala	Gly	Glu	Glu	Glu	Ala	Leu	Arg	Gln	Tyr
	195						200					205			
Gln	Gln	Arg	Lys	Gln	Gln	Gln	Gln	Glu	Gly	Asn	Tyr	Leu	Gln	His	Val
	210					215					220				
Gln	Leu	Asp	Gln	Arg	Ser	Leu	Val	Leu	Asn	Thr	Glu	Pro	Ala	Glu	Cys
225				230						235					240
Pro	Val	Cys	Tyr	Ser	Val	Leu	Ala	Pro	Gly	Glu	Ala	Val	Val	Leu	Arg
			245						250					255	
Glu	Cys	Leu	His	Thr	Phe	Cys	Arg	Glu	Cys	Leu	Gln	Gly	Thr	Ile	Arg



260						265						270					
Asn	Ser	Gln	Glu	Ala	Glu	Val	Ser	Cys	Pro	Phe	Ile	Asp	Asn	Thr	Tyr		
275						280						285					
Ser	Cys	Ser	Gly	Lys	Leu	Leu	Glu	Arg	Glu	Ile	Lys	Ala	Leu	Leu	Thr		
290						295						300					
Pro	Glu	Asp	Tyr	Gln	Arg	Phe	Leu	Asp	Leu	Gly	Ile	Ser	Ile	Ala	Glu		
305						310						315					
Asn	Arg	Ser	Ala	Phe	Ser	Tyr	His	Cys	Lys	Thr	Pro	Asp	Cys	Lys	Gly		
325						330						335					
Trp	Cys	Phe	Phe	Glu	Asp	Asp	Val	Asn	Glu	Phe	Thr	Cys	Pro	Val	Cys		
340						345						350					
Phe	His	Val	Asn	Cys	Leu	Leu	Cys	Lys	Ala	Ile	His	Glu	Gln	Met	Asn		
355						360						365					
Cys	Lys	Glu	Tyr	Gln	Glu	Asp	Leu	Ala	Leu	Arg	Ala	Gln	Asn	Asp	Val		
370						375						380					
Ala	Ala	Arg	Gln	Thr	Thr	Glu	Met	Leu	Lys	Val	Met	Leu	Gln	Gln	Gly		
385						390						395					
Glu	Ala	Met	Arg	Cys	Pro	Gln	Cys	Gln	Ile	Val	Val	Gln	Lys	Lys	Asp		
405						410						415					
Gly	Cys	Asp	Trp	Ile	Arg	Cys	Thr	Val	Cys	His	Thr	Glu	Ile	Cys	Trp		
420						425						430					
Val	Thr	Lys	Gly	Pro	Arg	Trp	Gly	Pro	Gly	Gly	Pro	Gly	Asp	Thr	Ser		
435						440						445					
Gly	Gly	Cys	Arg	Cys	Arg	Val	Asn	Gly	Ile	Pro	Cys	His	Pro	Ser	Cys		
450						455						460					
Gln	Asn	Cys	His														
465																	

<210> 227

<211> 498

<212> PRT

<213> Mus musculus

<400> 227

Met	Ala	Leu	Ser	Leu	Ala	Arg	Ala	Val	Ala	Gly	Gly	Asp	Glu	Gln	Ala	1	5	10	15
Ala	Ile	Lys	Tyr	Ala	Thr	Trp	Leu	Ala	Glu	Gln	Arg	Val	Pro	Leu	Arg	20	25	30	
Val	Gln	Val	Lys	Pro	Glu	Val	Ser	Pro	Thr	Gln	Asp	Ile	Arg	Leu	Cys	35	40	45	
Val	Ser	Val	Glu	Asp	Ala	Tyr	Met	His	Thr	Val	Thr	Ile	Trp	Leu	Thr	50	55	60	
Val	Arg	Pro	Asp	Met	Thr	Val	Ala	Ser	Leu	Lys	Asp	Met	Val	Phe	Leu	65	70	75	80
Asp	Tyr	Gly	Phe	Pro	Pro	Ser	Leu	Gln	Gln	Trp	Val	Val	Gly	Gln	Arg	85	90	95	
Leu	Ala	Arg	Asp	Gln	Glu	Thr	Leu	His	Ser	His	Gly	Ile	Arg	Arg	Asn	100	105	110	
Gly	Asp	Gly	Ala	Tyr	Leu	Tyr	Leu	Leu	Ser	Ala	Arg	Asn	Thr	Ser	Leu	115	120	125	
Asn	Pro	Gln	Glu	Leu	Gln	Arg	Gln	Arg	Gln	Leu	Arg	Met	Leu	Glu	Asp	130	135	140	
Leu	Gly	Phe	Lys	Asp	Leu	Thr	Leu	Gln	Ser	Arg	Gly	Pro	Leu	Glu	Pro	145	150	155	160
Val	Leu	Pro	Lys	Pro	Arg	Thr	Asn	Gln	Glu	Pro	Gly	Gln	Pro	Asp	Ala	165	170	175	
Ala	Pro	Glu	Ser	Pro	Pro	Val	Gly	Trp	Gln	Cys	Pro	Gly	Cys	Thr	Phe	180	185	190	
Ile	Asn	Lys	Pro	Thr	Arg	Pro	Gly	Cys	Glu	Met	Cys	Cys	Arg	Ala	Arg	195	200	205	
Pro	Glu	Thr	Tyr	Gln	Ile	Pro	Ala	Ser	Tyr	Gln	Pro	Asp	Glu	Glu	Glu	210	215	220	
Arg	Ala	Arg	Leu	Ala	Gly	Glu	Glu	Glu	Ala	Leu	Arg	Gln	Tyr	Gln	Gln	225	230	235	240
Arg	Lys	Gln	Gln	Gln	Gln	Glu	Gly	Asn	Tyr	Leu	Gln	His	Val	Gln	Leu	245	250	255	

Glu Gln Arg Ser Leu Val Leu Asn Thr Glu Pro Thr Glu Cys Pro Val  
 260 265 270  
 Cys Tyr Ser Val Leu Ala Pro Gly Glu Ala Val Val Leu Arg Glu Cys  
 275 280 285  
 Leu His Thr Phe Cys Arg Glu Cys Leu Gln Gly Thr Ile Arg Asn Ser  
 290 295 300  
 Gln Glu Ala Glu Val Ala Cys Pro Phe Ile Asp Ser Thr Tyr Ser Cys  
 305 310 315 320  
 Pro Gly Lys Leu Leu Glu Arg Glu Ile Arg Ala Leu Leu Ser Pro Glu  
 325 330 335  
 Asp Tyr Gln Arg Phe Leu Asp Leu Gly Val Ser Ile Ala Glu Asn Arg  
 340 345 350  
 Ser Thr Leu Ser Tyr His Cys Lys Thr Pro Asp Cys Arg Gly Trp Cys  
 355 360 365  
 Phe Phe Glu Asp Asp Val Asn Glu Phe Thr Cys Pro Val Cys Thr Arg  
 370 375 380  
 Val Asn Cys Leu Leu Cys Lys Ala Ile His Glu His Met Asn Cys Arg  
 385 390 395 400  
 Glu Tyr Gln Asp Asp Leu Ala Leu Arg Ala Gln Asn Asp Val Ala Ala  
 405 410 415  
 Arg Gln Thr Thr Glu Met Leu Lys Val Met Leu Gln Gln Gly Glu Ala  
 420 425 430  
 Met His Cys Pro Gln Cys Arg Ile Val Val Gln Lys Lys Asp Gly Cys  
 435 440 445  
 Asp Trp Ile Arg Cys Thr Val Cys His Thr Glu Ile Cys Trp Val Thr  
 450 455 460  
 Lys Gly Pro Arg Trp Gly Pro Gly Gly Pro Gly Asp Thr Ser Gly Gly  
 465 470 475 480  
 Cys Arg Cys Arg Val Asn Gly Ile Pro Cys His Pro Ser Cys Gln Asn  
 485 490 495  
 Cys His

<210> 228

<211> 498

<212> PRT

<213> Rattus norvegicus

<400> 228

Met Ala Leu Ser Leu Ala Arg Ala Val Thr Gly Gly Asp Glu Gln Ala  
1 5 10 15

Ala Ile Lys Tyr Ala Thr Trp Leu Ala Glu Gln Lys Val Pro Leu Arg  
20 25 30

Val Gln Val Lys Pro Glu Val Ser Pro Thr Gln Asp Ile Arg Leu Cys  
35 40 45

Val Ser Val Glu Asp Ala Tyr Met His Thr Val Thr Ile Trp Leu Thr  
50 55 60

Val Arg Pro Asp Met Thr Val Ala Ser Leu Lys Asp Met Val Phe Leu  
65 70 75 80

Asp Tyr Gly Phe Pro Pro Ser Leu Gln Gln Trp Val Val Gly Gln Arg  
85 90 95

Leu Ala Arg Asp Gln Glu Thr Leu His Ser His Gly Ile Arg Arg Asn  
100 105 110

Gly Asp Ser Ala Tyr Leu Tyr Leu Leu Ser Ala Arg Asn Thr Ser Leu  
115 120 125

Asn Pro Gln Glu Leu Gln Arg Gln Arg Gln Leu Arg Met Leu Glu Asp  
130 135 140

Leu Gly Phe Lys Asp Leu Thr Leu Gln Pro Arg Gly Pro Leu Glu Pro  
145 150 155 160

Val Leu Pro Lys Pro Arg Thr His Gln Glu Thr Gly Gln Pro Asp Ala  
165 170 175

Ala Pro Glu Ser Pro Pro Val Gly Trp Gln Cys Pro Gly Cys Thr Phe  
180 185 190

Ile Asn Lys Pro Thr Arg Pro Gly Cys Glu Met Cys Cys Arg Ala Arg  
195 200 205

Pro Glu Ala Tyr Gln Ile Pro Ala Ser Tyr Gln Pro Asp Glu Glu Glu  
210 215 220

Arg Ala Arg Leu Ala Gly Glu Glu Glu Ala Leu Arg Gln Tyr Glu Gln  
 225 230 235 240  
 Arg Lys Gln Gln Gln Gln Glu Gly Asn Tyr Leu Gln His Val Gln Leu  
 245 250 255  
 Glu Gln Arg Ser Leu Val Leu Asn Thr Glu Pro Ala Glu Cys Pro Val  
 260 265 270  
 Cys Tyr Ser Val Leu Ala Pro Gly Glu Ala Val Val Leu Arg Glu Cys  
 275 280 285  
 Leu His Thr Phe Cys Arg Glu Cys Leu Gln Gly Thr Ile Arg Asn Ser  
 290 295 300  
 Gln Glu Ala Glu Val Ser Cys Pro Phe Ile Asp Asn Thr Tyr Ser Cys  
 305 310 315 320  
 Pro Gly Lys Leu Leu Glu Arg Glu Ile Arg Ala Leu Leu Ser Pro Glu  
 325 330 335  
 Asp Tyr Gln Arg Phe Leu Asp Leu Gly Val Ser Ile Ala Glu Asn Arg  
 340 345 350  
 Ser Thr Leu Ser Tyr His Cys Lys Thr Pro Asp Cys Arg Gly Trp Cys  
 355 360 365  
 Phe Phe Glu Asp Asp Val Asn Glu Phe Thr Cys Pro Val Cys Thr Arg  
 370 375 380  
 Val Asn Cys Leu Leu Cys Lys Ala Ile His Glu Arg Met Asn Cys Arg  
 385 390 395 400  
 Glu Tyr Gln Asp Asp Leu Ala His Arg Ala Arg Asn Asp Val Ala Ala  
 405 410 415  
 Gln Gln Thr Thr Glu Met Leu Arg Val Met Leu Gln Gln Gly Glu Ala  
 420 425 430  
 Met Tyr Cys Pro Gln Cys Arg Ile Val Val Gln Lys Lys Asp Gly Cys  
 435 440 445  
 Asp Trp Ile Arg Cys Thr Val Cys His Thr Glu Ile Cys Trp Val Thr  
 450 455 460  
 Lys Gly Pro Arg Trp Gly Pro Gly Gly Pro Gly Asp Thr Ser Gly Gly  
 465 470 475 480

Cys Arg Cys Arg Val Asn Gly Ile Pro Cys His Pro Ser Cys Gln Asn  
485 490 495

Cys His

<210> 229

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: zf-RanBP  
domain sequence

<400> 229

Arg Ala Gly Ser Asp Trp Asp Cys Ile Ser Ser Cys Leu Val Gln Asn  
1 5 10 15

Phe Ala Thr Ser Thr Lys Cys Val Ala Cys Gln Ala Pro Lys Pro Ser  
20 25 30

<210> 230

<211> 29

<212> PRT

<213> Homo sapiens

<400> 230

Pro Val Gly Trp Gln Cys Pro Gly Cys Thr Phe Ile Asn Lys Pro Thr  
1 5 10 15

Arg Pro Gly Cys Glu Met Cys Cys Arg Ala Arg Pro Glu  
20 25

<210> 231

<211> 53

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: zf-C3HC4

domain sequence

<400> 231

Cys Pro Ile Cys Leu Thr Thr Phe Asp Leu Asp Glu Pro Lys Pro Phe  
1 5 10 15

Lys Glu Pro Val Leu Leu Pro Cys Gly His Ser Phe Cys Ser Lys Cys  
20 25 30

Ile Val Glu Leu Leu Arg Leu Ser Gln Asn Ser Lys Asn Asn Ser Val  
35 40 45

Tyr Lys Cys Pro Leu  
50

<210> 232

<211> 44

<212> PRT

<213> Homo sapiens

<400> 232

Cys Pro Val Cys Tyr Ser Val Leu Ala Pro Gly Glu Ala Val Val Leu  
1 5 10 15

Arg Glu Cys Leu His Thr Phe Cys Arg Glu Cys Leu Gln Gly Thr Ile  
20 25 30

Arg Asn Ser Gln Glu Ala Glu Val Ser Cys Pro Phe  
35 40

<210> 233

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: zf-C3HC4  
domain sequence

<400> 233

Asn Ser Val Tyr Lys Cys Pro Leu Cys  
1 5

<210> 234

<211> 8

<212> PRT

<213> Homo sapiens

<400> 234

Asn Glu Phe Thr Cys Pro Val Cys

1

5

<210> 235

<211> 72

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: IBR domain  
sequence

<400> 235

Glu Lys Tyr Glu Lys Phe Met Val Arg Ser Tyr Val Glu Lys Asn Pro

1

5

10

15

Asp Leu Lys Trp Cys Pro Gly Pro Asp Cys Ser Tyr Ala Val Arg Leu

20

25

30

Thr Glu Val Ser Ser Ser Thr Glu Leu Ala Glu Pro Pro Arg Val Glu

35

40

45

Cys Lys Lys Pro Ala Cys Gly Thr Ser Phe Cys Phe Lys Cys Gly Ala

50

55

60

Glu Trp His Ala Pro Val Ser Cys

65

70

<210> 236

<211> 61

<212> PRT

<213> Homo sapiens

<400> 236

Gln Arg Phe Leu Asp Leu Gly Ile Ser Ile Ala Glu Asn Arg Ser Ala

1

5

10

15

Phe Ser Tyr His Cys Lys Thr Pro Asp Cys Lys Gly Trp Cys Phe Phe

20

25

30

Glu Asp Asp Val Asn Glu Phe Thr Cys Pro Val Cys Phe His Val Asn

35

40

45



Cys Leu Leu Cys Lys Ala Ile His Glu Gln Met Asn Cys  
50 55 60

<210> 237  
<211> 61  
<212> PRT  
<213> Homo sapiens

<400> 237  
Thr Ile Trp Leu Thr Val Arg Pro Asp Met Thr Val Ala Ser Leu Lys  
1 5 10 15  
Asp Met Val Phe Leu Asp Tyr Gly Phe Pro Pro Val Leu Gln Gln Trp  
20 25 30  
Val Ile Gly Gln Arg Leu Ala Arg Asp Gln Glu Thr Leu His Ser His  
35 40 45  
Gly Val Arg Gln Asn Gly Asp Ser Ala Tyr Leu Tyr Leu  
50 55 60

<210> 238  
<211> 60  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Ubiquitin  
homologues domain sequence

<400> 238  
Thr Ile Thr Leu Glu Val Lys Pro Ser Asp Thr Val Ser Glu Leu Lys  
1 5 10 15  
Glu Lys Ile Ala Asp Leu Glu Gly Ile Pro Pro Glu Gln Gln Arg Leu  
20 25 30  
Ile Tyr Lys Gly Lys Val Leu Glu Asp Asp Arg Thr Leu Ala Glu Tyr  
35 40 45  
Gly Ile Gln Asp Gly Ser Thr Ile His Leu Val Leu  
50 55 60

<210> 239

<211> 337

<212> PRT

<213> Homo sapiens

<400> 239

Met Asn Pro Glu Ser Ser Ile Phe Ile Glu Asp Tyr Leu Lys Tyr Phe  
1 5 10 15

Gln Asp Gln Val Ser Arg Glu Asn Leu Leu Gln Leu Leu Thr Asp Asp  
20 25 30

Glu Ala Trp Asn Gly Phe Val Ala Ala Ala Glu Leu Pro Arg Asp Glu  
35 40 45

Ala Asp Glu Leu Arg Lys Ala Leu Asn Lys Leu Ala Ser His Met Val  
50 55 60

Met Lys Asp Lys Asn Arg His Asp Lys Asp Gln Gln His Arg Gln Trp  
65 70 75 80

Phe Leu Lys Glu Phe Pro Arg Leu Lys Arg Glu Leu Glu Asp His Ile  
85 90 95

Arg Lys Leu Arg Ala Leu Ala Glu Glu Val Glu Gln Val His Arg Gly  
100 105 110

Thr Thr Ile Ala Asn Val Val Ser Asn Ser Val Gly Thr Thr Ser Gly  
115 120 125

Ile Leu Thr Leu Leu Gly Leu Gly Leu Ala Pro Phe Thr Glu Gly Ile  
130 135 140

Ser Phe Val Leu Leu Asp Thr Gly Met Gly Leu Gly Ala Ala Ala Ala  
145 150 155 160

Val Ala Gly Ile Thr Cys Ser Val Val Glu Leu Val Asn Lys Leu Arg  
165 170 175

Ala Arg Ala Gln Ala Arg Asn Leu Asp Gln Ser Gly Thr Asn Val Ala  
180 185 190

Lys Val Met Lys Glu Phe Val Gly Gly Asn Thr Pro Asn Val Leu Thr  
195 200 205

Leu Val Asp Asn Trp Tyr Gln Val Thr Gln Gly Ile Gly Arg Asn Ile  
210 215 220

Arg Ala Ile Arg Arg Ala Arg Ala Asn Pro Gln Leu Gly Ala Tyr Ala

225                      230                      235                      240  
 Pro Pro Pro His Val Ile Gly Arg Ile Ser Ala Glu Gly Gly Glu Gln  
                                  245                      250                      255  
 Val Glu Arg Val Val Glu Gly Pro Ala Gln Ala Met Ser Arg Gly Thr  
                                  260                      265                      270  
 Met Ile Val Gly Ala Ala Thr Gly Gly Ile Leu Leu Leu Leu Asp Val  
                                  275                      280                      285  
 Val Ser Leu Ala Tyr Glu Ser Lys His Leu Leu Glu Gly Ala Lys Ser  
                                  290                      295                      300  
 Glu Ser Ala Glu Glu Leu Lys Lys Arg Ala Gln Glu Leu Glu Gly Lys  
 305                                   310                                   315                                   320  
 Leu Asn Phe Leu Thr Lys Ile His Glu Met Leu Gln Pro Gly Gln Asp  
                                  325                                   330                                   335  
 Gln

<210> 240  
 <211> 337  
 <212> PRT  
 <213> Homo sapiens

<400> 240  
 Met Asn Pro Glu Ser Ser Ile Phe Ile Glu Asp Tyr Leu Lys Tyr Phe  
   1                                  5                                  10                                  15  
 Gln Asp Gln Val Ser Arg Glu Asn Leu Leu Gln Leu Leu Thr Asp Asp  
                                   20                                  25                                  30  
 Glu Ala Trp Asn Gly Phe Val Ala Ala Ala Glu Leu Pro Arg Asp Glu  
                                   35                                  40                                  45  
 Ala Asp Glu Leu Arg Lys Ala Leu Asn Lys Leu Ala Ser His Met Val  
                                   50                                  55                                  60  
 Met Lys Asp Lys Asn Arg His Asp Lys Asp Gln Gln His Arg Gln Trp  
   65                                  70                                  75                                  80  
 Phe Leu Lys Glu Phe Pro Arg Leu Lys Arg Glu Leu Glu Asp His Ile  
                                   85                                  90                                  95

Arg	Lys	Leu	Arg	Ala	Leu	Ala	Glu	Glu	Val	Glu	Gln	Val	His	Arg	Gly			
			100						105					110				
Thr	Thr	Ile	Ala	Asn	Val	Val	Ser	Asn	Ser	Val	Gly	Thr	Thr	Ser	Gly			
		115					120					125						
Ile	Leu	Thr	Leu	Leu	Gly	Leu	Gly	Leu	Ala	Pro	Phe	Thr	Glu	Gly	Ile			
	130					135					140							
Ser	Phe	Val	Leu	Leu	Asp	Thr	Gly	Met	Gly	Leu	Gly	Ala	Ala	Ala	Ala			
145					150					155					160			
Val	Ala	Gly	Ile	Thr	Cys	Ser	Val	Val	Glu	Leu	Val	Asn	Lys	Leu	Arg			
				165					170					175				
Ala	Arg	Ala	Gln	Ala	Arg	Asn	Leu	Asp	Gln	Ser	Gly	Thr	Asn	Val	Ala			
			180					185					190					
Lys	Val	Met	Lys	Glu	Phe	Val	Gly	Gly	Asn	Thr	Pro	Asn	Val	Leu	Thr			
		195					200					205						
Leu	Val	Asp	Asn	Trp	Tyr	Gln	Val	Thr	Gln	Gly	Ile	Gly	Arg	Asn	Ile			
	210					215					220							
Arg	Ala	Ile	Arg	Arg	Ala	Arg	Ala	Asn	Pro	Gln	Leu	Gly	Ala	Tyr	Ala			
225					230					235					240			
Pro	Pro	Pro	His	Ile	Ile	Gly	Arg	Ile	Ser	Ala	Glu	Gly	Gly	Glu	Gln			
			245						250					255				
Val	Glu	Arg	Val	Val	Glu	Gly	Pro	Ala	Gln	Ala	Met	Ser	Arg	Gly	Thr			
			260					265					270					
Met	Ile	Val	Gly	Ala	Ala	Thr	Gly	Gly	Ile	Leu	Leu	Leu	Leu	Asp	Val			
	275						280					285						
Val	Ser	Leu	Ala	Tyr	Glu	Ser	Lys	His	Leu	Leu	Glu	Gly	Ala	Lys	Ser			
	290						295				300							
Glu	Ser	Ala	Glu	Glu	Leu	Lys	Lys	Arg	Ala	Gln	Glu	Leu	Glu	Gly	Lys			
305					310					315				320				
Leu	Asn	Phe	Leu	Thr	Lys	Ile	His	Glu	Met	Leu	Gln	Pro	Gly	Gln	Asp			
				325					330					335				
Gln																		

<210> 241  
 <211> 279  
 <212> PRT  
 <213> Homo sapiens

<400> 241

Leu Ala Ser His Met Val Met Lys Asp Lys Asn Arg His Asp Lys Asp  
 1 5 10 15

Gln Gln His Arg Gln Trp Phe Leu Lys Glu Phe Pro Arg Leu Lys Arg  
 20 25 30

Glu Leu Glu Asp His Ile Arg Lys Leu Arg Ala Leu Ala Glu Glu Val  
 35 40 45

Glu Gln Val His Arg Gly Thr Thr Ile Ala Asn Val Val Ser Asn Ser  
 50 55 60

Val Gly Thr Thr Ser Gly Ile Leu Thr Leu Leu Gly Leu Gly Leu Ala  
 65 70 75 80

Pro Phe Thr Glu Gly Ile Ser Phe Val Leu Leu Asp Thr Gly Met Gly  
 85 90 95

Leu Gly Ala Ala Ala Ala Val Ala Gly Ile Thr Cys Ser Val Val Glu  
 100 105 110

Leu Val Asn Lys Leu Arg Ala Arg Ala Gln Ala Arg Asn Leu Asp Gln  
 115 120 125

Ser Gly Thr Asn Val Ala Lys Val Met Lys Glu Phe Val Gly Gly Asn  
 130 135 140

Thr Pro Asn Val Leu Thr Leu Val Asp Asn Trp Tyr Gln Val Thr Gln  
 145 150 155 160

Gly Ile Gly Arg Asn Ile Arg Ala Ile Arg Arg Ala Arg Ala Asn Pro  
 165 170 175

Gln Leu Gly Ala Tyr Ala Pro Pro Pro His Ile Ile Gly Arg Ile Ser  
 180 185 190

Ala Glu Gly Gly Glu Gln Val Glu Arg Val Val Glu Gly Pro Ala Gln  
 195 200 205

Ala Met Ser Arg Gly Thr Met Ile Val Gly Ala Ala Thr Gly Gly Ile  
 210 215 220

Leu Leu Leu Leu Asp Val Val Ser Leu Ala Tyr Glu Ser Lys His Leu  
 225 230 235 240

Leu Glu Gly Ala Lys Ser Glu Ser Ala Glu Glu Leu Lys Lys Arg Ala  
 245 250 255

Gln Glu Leu Glu Gly Lys Leu Asn Phe Leu Thr Lys Ile His Glu Met  
 260 265 270

Leu Gln Pro Gly Gln Asp Gln  
 275

<210> 242

<211> 414

<212> PRT

<213> Homo sapiens

<400> 242

Met Arg Phe Lys Ser His Thr Val Glu Leu Arg Arg Pro Cys Ser Asp  
 1 5 10 15

Met Glu Gly Ala Ala Leu Leu Arg Val Ser Val Leu Cys Ile Trp Met  
 20 25 30

Ser Ala Leu Phe Leu Gly Val Arg Val Arg Ala Glu Glu Ala Gly Ala  
 35 40 45

Arg Val Gln Gln Asn Val Pro Ser Gly Thr Asp Thr Gly Asp Pro Gln  
 50 55 60

Ser Lys Pro Leu Gly Asp Trp Ala Ala Gly Thr Met Asp Pro Glu Ser  
 65 70 75 80

Ser Ile Phe Ile Glu Asp Ala Ile Lys Tyr Phe Lys Glu Lys Val Ser  
 85 90 95

Thr Gln Asn Leu Leu Leu Leu Thr Asp Asn Glu Ala Trp Asn Gly  
 100 105 110

Phe Val Ala Ala Ala Glu Leu Pro Arg Asn Glu Ala Asp Glu Leu Arg  
 115 120 125

Lys Ala Leu Asp Asn Leu Ala Arg Gln Met Ile Met Lys Asp Lys Asn  
 130 135 140

Trp His Asp Lys Gly Gln Gln Tyr Arg Asn Trp Phe Leu Lys Glu Phe

145					150					155				160	
Pro	Arg	Leu	Lys	Ser	Lys	Leu	Glu	Asp	Asn	Ile	Arg	Arg	Leu	Arg	Ala
				165					170					175	
Leu	Ala	Asp	Gly	Val	Gln	Lys	Val	His	Lys	Gly	Thr	Thr	Ile	Ala	Asn
			180					185					190		
Val	Val	Ser	Gly	Ser	Leu	Ser	Ile	Ser	Ser	Gly	Ile	Leu	Thr	Leu	Val
		195					200					205			
Gly	Met	Gly	Leu	Ala	Pro	Phe	Thr	Glu	Gly	Gly	Ser	Leu	Val	Leu	Leu
	210					215					220				
Glu	Pro	Gly	Met	Glu	Leu	Gly	Ile	Thr	Ala	Ala	Leu	Thr	Gly	Ile	Thr
225					230				235					240	
Ser	Ser	Thr	Ile	Asp	Tyr	Gly	Lys	Lys	Trp	Trp	Thr	Gln	Ala	Gln	Ala
				245					250					255	
His	Asp	Leu	Val	Ile	Lys	Ser	Leu	Asp	Lys	Leu	Lys	Glu	Val	Lys	Glu
			260					265					270		
Phe	Leu	Gly	Glu	Asn	Ile	Ser	Asn	Phe	Leu	Ser	Leu	Ala	Gly	Asn	Thr
		275					280					285			
Tyr	Gln	Leu	Thr	Arg	Gly	Ile	Gly	Lys	Asp	Ile	Arg	Ala	Leu	Arg	Arg
	290					295					300				
Ala	Arg	Ala	Asn	Leu	Gln	Ser	Val	Pro	His	Ala	Ser	Ala	Ser	Arg	Pro
305					310					315				320	
Arg	Val	Thr	Glu	Pro	Ile	Ser	Ala	Glu	Ser	Gly	Glu	Gln	Val	Glu	Arg
				325					330					335	
Val	Asn	Glu	Pro	Ser	Ile	Leu	Glu	Met	Ser	Arg	Gly	Val	Lys	Leu	Thr
			340					345					350		
Asp	Val	Ala	Pro	Val	Ser	Phe	Phe	Leu	Val	Leu	Asp	Val	Val	Tyr	Leu
		355					360					365			
Val	Tyr	Glu	Ser	Lys	His	Leu	His	Glu	Gly	Ala	Lys	Ser	Glu	Thr	Ala
	370					375					380				
Glu	Glu	Leu	Lys	Lys	Val	Ala	Gln	Glu	Leu	Glu	Glu	Lys	Leu	Asn	Ile
385					390					395				400	
Leu	Asn	Asn	Asn	Tyr	Lys	Ile	Leu	Gln	Ala	Asp	Gln	Glu	Leu		

405

410

&lt;210&gt; 243

&lt;211&gt; 398

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 243

Met	Glu	Gly	Ala	Ala	Leu	Leu	Arg	Val	Ser	Val	Leu	Cys	Ile	Trp	Met
1				5					10					15	

Ser	Ala	Leu	Phe	Leu	Gly	Val	Gly	Val	Arg	Ala	Glu	Glu	Ala	Gly	Ala
		20						25					30		

Arg	Val	Gln	Gln	Asn	Val	Pro	Ser	Gly	Thr	Asp	Thr	Gly	Asp	Pro	Gln
		35						40				45			

Ser	Lys	Pro	Leu	Gly	Asp	Trp	Ala	Ala	Gly	Thr	Met	Asp	Pro	Glu	Ser
	50					55					60				

Ser	Ile	Phe	Ile	Glu	Asp	Ala	Ile	Lys	Tyr	Phe	Lys	Glu	Lys	Val	Ser
65					70					75					80

Thr	Gln	Asn	Leu	Leu	Leu	Leu	Leu	Thr	Asp	Asn	Glu	Ala	Trp	Asn	Gly
			85						90					95	

Phe	Val	Ala	Ala	Ala	Glu	Leu	Pro	Arg	Asn	Glu	Ala	Asp	Glu	Leu	Arg
		100						105					110		

Lys	Ala	Leu	Asp	Asn	Leu	Ala	Arg	Gln	Met	Ile	Met	Lys	Asp	Lys	Asn
	115						120					125			

Trp	His	Asp	Lys	Gly	Gln	Gln	Tyr	Arg	Asn	Trp	Phe	Leu	Lys	Glu	Phe
	130					135					140				

Pro	Arg	Leu	Lys	Ser	Glu	Leu	Glu	Asp	Asn	Ile	Arg	Arg	Leu	Arg	Ala
145					150					155					160

Leu	Ala	Asp	Gly	Val	Gln	Lys	Val	His	Lys	Gly	Thr	Thr	Ile	Ala	Asn
			165						170					175	

Val	Val	Ser	Gly	Ser	Leu	Ser	Ile	Ser	Ser	Gly	Ile	Leu	Thr	Leu	Val
		180						185					190		

Gly	Met	Gly	Leu	Ala	Pro	Phe	Thr	Glu	Gly	Gly	Ser	Leu	Val	Leu	Leu
	195						200					205			



Glu Pro Gly Met Glu Leu Gly Ile Thr Ala Ala Leu Thr Gly Ile Thr  
210 215 220

Ser Ser Thr Ile Asp Tyr Gly Lys Lys Trp Trp Thr Gln Ala Gln Ala  
225 230 235 240

His Asp Leu Val Ile Lys Ser Leu Asp Lys Leu Lys Glu Val Lys Glu  
245 250 255

Phe Leu Gly Glu Asn Ile Ser Asn Phe Leu Ser Leu Ala Gly Asn Thr  
260 265 270

Tyr Gln Leu Thr Arg Gly Ile Gly Lys Asp Ile Arg Ala Leu Arg Arg  
275 280 285

Ala Arg Ala Asn Leu Gln Ser Val Pro His Ala Ser Ala Ser Arg Pro  
290 295 300

Arg Val Thr Glu Pro Ile Ser Ala Glu Ser Gly Glu Gln Val Glu Arg  
305 310 315 320

Val Asn Glu Pro Ser Ile Leu Glu Met Ser Arg Gly Val Lys Leu Thr  
325 330 335

Asp Val Ala Pro Val Gly Phe Phe Leu Val Leu Asp Val Val Tyr Leu  
340 345 350

Val Tyr Glu Ser Lys His Leu His Glu Gly Ala Lys Ser Glu Thr Ala  
355 360 365

Glu Glu Leu Lys Lys Val Ala Gln Glu Leu Glu Glu Lys Leu Asn Met  
370 375 380

Leu Asn Asn Asn Tyr Lys Ile Leu Gln Ala Asp Gln Glu Leu  
385 390 395

<210> 244

<211> 479

<212> PRT

<213> Homo sapiens

<400> 244

Met Ala Trp Asn Thr Asn Leu Arg Trp Arg Leu Pro Leu Thr Cys Leu  
1 5 10 15

Leu Leu Gln Val Ile Met Val Ile Leu Phe Gly Val Phe Val Arg Tyr  
20 25 30

Asp	Phe	Glu	Ala	Asp	Ala	His	Trp	Trp	Ser	Glu	Arg	Thr	His	Lys	Asn			
		35					40					45						
Leu	Ser	Asp	Met	Glu	Asn	Glu	Phe	Tyr	Tyr	Arg	Tyr	Pro	Ser	Phe	Gln			
	50					55					60							
Asp	Val	His	Val	Met	Val	Phe	Val	Gly	Phe	Gly	Phe	Leu	Met	Thr	Phe			
	65				70					75					80			
Leu	Gln	Arg	Tyr	Gly	Phe	Ser	Ala	Val	Gly	Phe	Asn	Phe	Leu	Leu	Ala			
				85					90					95				
Ala	Phe	Gly	Ile	Gln	Trp	Ala	Leu	Leu	Met	Gln	Gly	Trp	Phe	His	Phe			
			100					105					110					
Leu	Gln	Asp	Arg	Tyr	Ile	Val	Val	Gly	Val	Glu	Asn	Leu	Ile	Asn	Ala			
		115					120					125						
Asp	Phe	Cys	Val	Ala	Ser	Val	Cys	Val	Ala	Phe	Gly	Ala	Val	Leu	Gly			
	130					135					140							
Lys	Val	Ser	Pro	Ile	Gln	Leu	Leu	Ile	Met	Thr	Phe	Phe	Gln	Val	Thr			
	145				150					155					160			
Leu	Phe	Ala	Val	Asn	Glu	Phe	Ile	Leu	Leu	Asn	Leu	Leu	Lys	Val	Lys			
				165					170					175				
Asp	Ala	Gly	Gly	Ser	Met	Thr	Ile	His	Thr	Phe	Gly	Ala	Tyr	Phe	Gly			
			180					185					190					
Leu	Thr	Val	Thr	Arg	Ile	Leu	Tyr	Arg	Arg	Asn	Leu	Glu	Gln	Ser	Lys			
		195					200					205						
Glu	Arg	Gln	Asn	Ser	Val	Tyr	Gln	Ser	Asp	Leu	Phe	Ala	Met	Ile	Gly			
	210					215					220							
Thr	Leu	Phe	Leu	Trp	Met	Tyr	Trp	Pro	Ser	Phe	Asn	Ser	Ala	Ile	Ser			
	225				230					235					240			
Tyr	His	Gly	Asp	Ser	Gln	His	Arg	Ala	Ala	Ile	Asn	Thr	Tyr	Cys	Ser			
				245				250						255				
Leu	Ala	Ala	Cys	Val	Leu	Thr	Ser	Val	Ala	Ile	Ser	Ser	Ala	Leu	His			
			260					265					270					
Lys	Lys	Gly	Lys	Leu	Asp	Met	Val	His	Ile	Gln	Asn	Ala	Thr	Leu	Ala			
		275					280					285						

Gly Gly Val Ala Val Gly Thr Ala Ala Glu Met Met Leu Met Pro Tyr  
 290 295 300

Gly Ala Leu Ile Ile Gly Phe Val Cys Gly Ile Ile Ser Thr Leu Gly  
 305 310 315 320

Phe Val Tyr Leu Thr Pro Phe Leu Glu Ser Arg Leu His Ile Gln Asp  
 325 330 335

Thr Cys Gly Ile Asn Asn Leu His Gly Ile Pro Gly Ile Ile Gly Gly  
 340 345 350

Ile Val Gly Ala Val Thr Ala Ala Ser Ala Ser Leu Glu Val Tyr Gly  
 355 360 365

Lys Glu Gly Leu Val His Ser Phe Asp Phe Gln Gly Phe Asn Gly Asp  
 370 375 380

Trp Thr Ala Arg Thr Gln Gly Lys Phe Gln Ile Tyr Gly Leu Leu Val  
 385 390 395 400

Thr Leu Ala Met Ala Leu Met Gly Gly Ile Ile Val Gly Leu Ile Leu  
 405 410 415

Arg Leu Pro Phe Trp Gly Gln Pro Ser Asp Glu Asn Cys Phe Glu Asp  
 420 425 430

Ala Val Tyr Trp Glu Met Pro Glu Gly Asn Ser Thr Val Tyr Ile Pro  
 435 440 445

Glu Asp Pro Thr Phe Lys Pro Ser Gly Pro Ser Val Pro Ser Val Pro  
 450 455 460

Met Val Ser Pro Leu Pro Met Ala Ser Ser Val Pro Leu Val Pro  
 465 470 475

<210> 245

<211> 498

<212> PRT

<213> Mus musculus

<400> 245

Met Ala Trp Asn Thr Asn Leu Arg Gly Arg Leu Pro Ile Thr Cys Leu  
 1 5 10 15

Ile Leu Gln Val Thr Met Val Val Leu Phe Gly Val Phe Val Arg Tyr

20							25						30				
Asp	Ile	Gln	Ala	Asp	Ala	His	Trp	Trp	Leu	Glu	Lys	Lys	Arg	Lys	Asn		
35							40						45				
Ile	Ser	Ser	Asp	Val	Glu	Asn	Glu	Phe	Tyr	Tyr	Arg	Tyr	Pro	Ser	Phe		
50							55						60				
Gln	Asp	Val	His	Ala	Met	Val	Phe	Val	Gly	Phe	Gly	Phe	Leu	Met	Thr		
65							70						75				
Phe	Leu	Gln	Arg	Tyr	Gly	Phe	Ser	Ala	Val	Gly	Phe	Asn	Phe	Leu	Leu		
85							90						95				
Ala	Ala	Phe	Gly	Ile	Gln	Trp	Ala	Leu	Leu	Met	Gln	Gly	Trp	Phe	His		
100							105						110				
Tyr	Phe	Glu	Glu	Gly	His	Ile	Val	Leu	Ser	Val	Glu	Asn	Ile	Ile	Gln		
115							120						125				
Ala	Asp	Phe	Cys	Val	Ala	Ser	Ser	Cys	Val	Ala	Phe	Gly	Ala	Val	Leu		
130							135						140				
Gly	Lys	Val	Ser	Pro	Met	Gln	Leu	Leu	Ile	Met	Thr	Phe	Phe	Gln	Val		
145							150						155				
Thr	Leu	Phe	Thr	Val	Asn	Glu	Phe	Ile	Leu	Leu	Asn	Leu	Ile	Glu	Ala		
165							170						175				
Lys	Asp	Ala	Gly	Gly	Ser	Met	Thr	Ile	His	Thr	Phe	Gly	Ala	Tyr	Phe		
180							185						190				
Gly	Leu	Thr	Val	Thr	Trp	Ile	Leu	Tyr	Arg	Lys	Asn	Leu	Asp	Gln	Ser		
195							200						205				
Lys	Gln	Arg	Gln	Ser	Ser	Val	Tyr	His	Ser	Asp	Leu	Phe	Ala	Met	Ile		
210							215						220				
Gly	Thr	Leu	Phe	Leu	Trp	Ile	Tyr	Trp	Pro	Ser	Phe	Asn	Ser	Ala	Ser		
225							230						235				
Ser	Phe	His	Gly	Asp	Ala	Gln	His	Arg	Ala	Ala	Leu	Asn	Thr	Tyr	Leu		
245							250						255				
Ser	Leu	Ala	Ala	Ser	Val	Leu	Thr	Thr	Val	Thr	Val	Ser	Ser	Ile	Val		
260							265						270				
His	Lys	Lys	Gly	Lys	Leu	Asp	Met	Val	His	Ile	Gln	Asn	Ala	Thr	Leu		

275		280		285
Ala Gly Gly Val Gly Val Gly Thr Ala Ala Glu Met Met Leu Thr Pro				
290		295		300
Tyr Gly Ala Leu Ile Val Gly Phe Phe Cys Gly Ile Phe Ser Thr Leu				
305		310		315
Gly Phe Ala Tyr Leu Thr Pro Phe Leu Glu Ser Arg Leu Arg Ile Gln				
	325		330	335
Asp Thr Cys Gly Ile His Asn Leu His Gly Ile Pro Gly Ile Ile Gly				
	340		345	350
Gly Ile Val Gly Ala Val Thr Ala Ala Tyr Ser Ser Pro Asp Val Tyr				
	355		360	365
Gly Glu Pro Gly Ile Val His Ser Phe Gly Phe Gly Ser Tyr Lys Met				
	370		375	380
Asp Trp Asn Lys Arg Met Gln Gly Arg Ser Gln Ile Phe Gly Leu Leu				
	385		390	395
Leu Ser Leu Ala Met Ala Leu Val Gly Gly Ile Ile Val Gly Phe Ile				
	405		410	415
Leu Lys Leu Pro Phe Trp Gly Gln Ala Ala Asp Glu Asn Cys Phe Glu				
	420		425	430
Asp Ser Ile Tyr Trp Glu Val His Glu Glu Val Asn Thr Val Tyr Ile				
	435		440	445
Pro Glu Asp Leu Ala His Lys His Ser Thr Ser Leu Val Pro Ala Met				
	450		455	460
Pro Leu Val Leu Pro Thr Thr Ser Ala Ser Ile Val Pro Pro Val Pro				
	465		470	475
Pro Thr Pro Pro Val Ser Leu Ala Thr Ser Ala Pro Ser Ala Ala Leu				
	485		490	495
Val His				

<210> 246  
 <211> 459  
 <212> PRT

<213> Bos taurus

<400> 246

Met	Ile	Trp	Asn	Thr	Asn	Leu	Arg	Trp	Arg	Leu	Pro	Val	Ala	Cys	Leu	
1				5				10						15		
Leu	Leu	Glu	Val	Ala	Leu	Ile	Ala	Leu	Phe	Gly	Val	Phe	Val	Arg	Tyr	
			20					25						30		
Asp	Met	Asp	Ala	Asp	Pro	His	Trp	Val	Gln	Glu	Lys	Val	Ile	Lys	Asn	
		35					40					45				
Leu	Ser	Thr	Asp	Leu	Glu	Asn	Glu	Phe	Tyr	Tyr	Arg	Tyr	Pro	Ser	Phe	
	50					55					60					
Gln	Asp	Val	His	Val	Met	Ile	Phe	Val	Gly	Phe	Gly	Phe	Leu	Met	Thr	
65					70					75					80	
Phe	Leu	Gln	Arg	Tyr	Gly	Tyr	Ser	Ser	Val	Gly	Phe	Asn	Phe	Leu	Ala	
			85						90						95	
Ala	Phe	Gly	Ile	Gln	Trp	Ala	Leu	Leu	Met	Gln	Gly	Trp	Leu	Gln	Ser	
			100					105						110		
Phe	Asp	Gly	Arg	Tyr	Ile	Leu	Val	Asp	Leu	Glu	Asn	Leu	Ile	Asn	Ala	
		115					120					125				
Asp	Phe	Cys	Val	Gly	Ser	Val	Cys	Val	Ala	Phe	Gly	Ala	Val	Leu	Gly	
		130				135					140					
Lys	Val	Ser	Pro	Val	Gln	Leu	Leu	Ile	Met	Thr	Leu	Phe	Gln	Val	Thr	
145					150					155					160	
Leu	Phe	Ser	Ile	Asn	Glu	Tyr	Ile	Leu	Leu	Asn	Leu	Leu	Glu	Val	Lys	
			165						170						175	
Asp	Ser	Gly	Gly	Ser	Met	Thr	Ile	His	Ala	Phe	Gly	Ala	Tyr	Phe	Gly	
			180					185					190			
Leu	Thr	Val	Ala	Trp	Ile	Leu	Tyr	Arg	Pro	Asn	Leu	His	Leu	Ser	Lys	
		195					200					205				
Glu	Arg	Gln	Ser	Ser	Thr	Tyr	His	Ser	Asp	Leu	Phe	Ala	Met	Ile	Gly	
	210					215					220					
Thr	Leu	Phe	Leu	Trp	Met	Tyr	Trp	Pro	Ser	Phe	Asn	Ser	Ala	Ile	Ser	
225					230					235					240	

Asn	His	Gly	Asp	Ala	Gln	His	Arg	Ala	Ala	Ile	Asn	Thr	Tyr	Cys	Ser	245	250	255
Leu	Ala	Ala	Cys	Val	Leu	Thr	Ser	Val	Ala	Leu	Ser	Ser	Ala	Leu	His	260	265	270
Arg	Lys	Gly	Lys	Leu	Asp	Met	Val	His	Ile	Gln	Asn	Ala	Thr	Leu	Ala	275	280	285
Gly	Gly	Val	Gly	Leu	Gly	Thr	Val	Ala	Glu	Leu	Met	Val	Leu	Pro	Phe	290	295	300
Gly	Ser	Leu	Ile	Ile	Gly	Phe	Val	Cys	Gly	Ile	Val	Ser	Thr	Leu	Gly	305	310	315
Phe	Val	Tyr	Leu	Thr	Pro	Phe	Leu	Glu	Ser	Arg	Leu	His	Ile	Gln	Asp	325	330	335
Thr	Cys	Gly	Val	His	Asn	Leu	His	Gly	Ile	Pro	Gly	Ile	Ile	Gly	Gly	340	345	350
Ile	Ala	Gly	Ala	Val	Thr	Ala	Ser	Ile	Ala	Asn	Ile	Asp	Leu	Tyr	Gly	355	360	365
Glu	Glu	Gly	Leu	Ala	Tyr	Ala	Phe	Gly	Ile	Glu	Arg	Ser	Lys	Leu	Asn	370	375	380
Trp	Ser	Pro	Asn	Met	Gln	Gly	Arg	Phe	Gln	Ala	Ala	Gly	Leu	Phe	Val	385	390	395
Ser	Leu	Ala	Met	Ala	Leu	Val	Gly	Gly	Val	Ile	Val	Gly	Val	Ile	Leu	405	410	415
Arg	Leu	Pro	Phe	Trp	Gly	Gln	Ala	Pro	Asp	Glu	Asn	Cys	Phe	Glu	Asp	420	425	430
Ala	Val	Tyr	Trp	Glu	Ile	Pro	Lys	Glu	Pro	Lys	Ser	Thr	Ala	Leu	Arg	435	440	445
Ser	Glu	Asp	Ser	Ser	Ile	Lys	Pro	Pro	Glu	Pro						450	455	

<210> 247

<211> 467

<212> PRT

<213> Orycctolagus cuniculus

<400> 247

Met Ala Trp Asn Thr Asn Leu Arg Trp Arg Leu Pro Leu Leu Cys Leu  
1 5 10 15

Val Leu Glu Val Ala Met Val Val Leu Phe Gly Leu Phe Val Arg Tyr  
20 25 30

Ser Pro Asp Ala Asp Ser Ser Trp Ser Asn Glu Lys Arg Lys Gly Asn  
35 40 45

Ile Thr Ser Asp Leu Glu Asn Glu Phe Tyr Tyr Arg Tyr Pro Ser Phe  
50 55 60

Gln Asp Val His Val Met Val Phe Leu Gly Phe Gly Phe Leu Met Thr  
65 70 75 80

Phe Leu Gln Arg Tyr Gly Tyr Cys Ala Leu Gly Phe Asn Phe Leu Leu  
85 90 95

Ala Ala Leu Gly Val Gln Trp Ala Leu Leu Met Gln Gly Trp Phe Gln  
100 105 110

Tyr Thr Lys Asp Arg Leu Ile Leu Leu Gly Ile Lys Asn Leu Ile Asp  
115 120 125

Ala Asp Ser Cys Val Ala Ser Val Cys Val Ala Phe Gly Ala Val Leu  
130 135 140

Gly Lys Val Ser Pro Val Gln Met Leu Leu Met Thr Phe Phe Gln Val  
145 150 155 160

Ala Leu Phe Ser Ala Asn Glu Phe Leu Leu Leu His Val Leu Glu Val  
165 170 175

Lys Asp Ala Gly Gly Ser Ile Thr Ile His Ile Phe Gly Ala Tyr Phe  
180 185 190

Gly Leu Thr Val Thr Trp Ile Leu Tyr Arg His Asn Leu Asp His Ser  
195 200 205

Arg Glu Arg Gln Ser Ser Val Tyr His Ser Asn Leu Phe Ala Met Ile  
210 215 220

Gly Thr Leu Phe Leu Trp Ile Tyr Trp Pro Ser Phe Asn Ser Ala Met  
225 230 235 240

Ser Asn Tyr Gly Asp Ala Gln His Arg Ala Ala Ile Asn Thr Tyr Cys  
245 250 255



Ser Leu Ala Ala Ser Val Leu Thr Ser Val Ala Met Ser Ser Val Leu  
260 265 270

His Lys Lys Gly Lys Leu Asp Met Val His Ile Gln Asn Ala Thr Leu  
275 280 285

Ala Gly Gly Val Gly Val Gly Thr Ala Ala Glu Met Met Leu Met Pro  
290 295 300

Tyr Gly Ala Leu Ile Val Gly Phe Ile Cys Gly Ala Val Ser Thr Leu  
305 310 315 320

Gly Phe Val Tyr Leu Thr Pro Phe Leu Glu Ser Arg Leu Arg Ile Gln  
325 330 335

Asp Thr Cys Gly Ile His Asn Leu His Gly Ile Pro Gly Leu Ile Gly  
340 345 350

Ala Ile Val Gly Ala Val Thr Ala Ala Tyr Ala Ser Pro Asp Gly Asp  
355 360 365

Arg Gly Phe Val Tyr Pro Phe Gly Phe His Asn Glu Lys Asp Glu Lys  
370 375 380

Val Gln Gly Arg Phe Gln Ala Phe Gly Leu Leu Leu Thr Leu Ala Ile  
385 390 395 400

Ala Met Val Gly Gly Thr Ile Met Gly Leu Ile Leu Lys Leu Pro Phe  
405 410 415

Trp Gly Gln Ala Met Asp Glu Asp Cys Phe Asp Asp Ser Ile Tyr Trp  
420 425 430

Glu Met His Glu Glu Lys Ser Ser Ser Pro Glu Asp His Thr His Lys  
435 440 445

Pro Ser Val Pro Thr Glu Pro Val Glu Gln Pro Thr Ser Ser Ala Thr  
450 455 460

Leu Ala Pro  
465

<210> 248

<211> 488

<212> PRT

<213> Oryzias latipes

<400> 248

Met Gly Asn Cys Cys Glu Ser Ala Ser Asn Phe Phe Gly Pro Gln Lys  
1 5 10 15

Asn Thr Asn Val Arg Val Ser Leu Pro Ala Val Cys Phe Val Trp Gln  
20 25 30

Ile Ala Met Ile Val Leu Phe Gly Val Phe Ile Arg Tyr Asp Glu Glu  
35 40 45

Ser Asp Ala His Trp Val Glu Leu Lys Lys Thr Glu Asn Leu Thr Asp  
50 55 60

Leu Gln Asn Glu Phe Tyr Phe Arg Tyr Pro Ser Phe Gln Asp Val His  
65 70 75 80

Val Met Ile Phe Val Gly Phe Gly Phe Leu Met Thr Phe Leu Lys Arg  
85 90 95

Tyr Ser Phe Ser Ala Val Gly Phe Asn Phe Leu Ile Ala Ala Phe Gly  
100 105 110

Leu Gln Trp Ala Leu Leu Met Gln Gly Trp Phe His His Phe Asp Tyr  
115 120 125

Ser Thr Gly Lys Ile Tyr Ile Gly Ile Glu Ser Leu Ile Asn Ala Asp  
130 135 140

Phe Cys Cys Ala Ala Ser Leu Ile Ala Tyr Gly Ala Ile Leu Gly Lys  
145 150 155 160

Val Ser Pro Val Gln Leu Met Val Val Thr Leu Phe Gly Val Thr Leu  
165 170 175

Phe Ala Val Glu Glu Tyr Ile Ile Leu Asp Leu Leu His Cys Arg Asp  
180 185 190

Ser Gly Gly Ala Met Val Ile His Cys Phe Gly Gly Tyr Tyr Gly Leu  
195 200 205

Ala Ile Ser Trp Val Leu Tyr Arg Pro Asn Leu His Arg Ser Lys Arg  
210 215 220

Leu Asn Gly Ser Val Tyr His Ser Asp Leu Phe Ala Met Ile Gly Thr  
225 230 235 240

Leu Phe Leu Trp Met Phe Trp Pro Ser Phe Asn Ser Ala Ile Ala Asn

				245						250						255			
His	Gly	Asp	Gly	Gln	His	Arg	Thr	Ala	Met	Asn	Thr	Tyr	Ile	Ala	Leu				
			260					265					270						
Ala	Ser	Ser	Val	Leu	Thr	Thr	Val	Ala	Leu	Ser	Ser	Met	Ser	Lys	Lys				
			275				280					285							
Glu	Gly	Lys	Leu	Asp	Met	Val	His	Ile	Gln	Asn	Ala	Thr	Leu	Ala	Gly				
		290				295				300									
Gly	Val	Ala	Met	Gly	Thr	Ala	Ala	Glu	Phe	Met	Ile	Thr	Pro	Tyr	Gly				
305					310					315					320				
Ser	Leu	Ile	Val	Gly	Phe	Cys	Ile	Gly	Ile	Ile	Ser	Thr	Phe	Gly	Tyr				
				325				330						335					
Leu	Tyr	Val	Thr	Pro	Phe	Leu	Glu	Lys	Arg	Leu	Lys	Leu	Gln	Asp	Thr				
			340					345					350						
Cys	Gly	Ile	His	Asn	Leu	His	Ala	Val	Pro	Gly	Met	Leu	Gly	Gly	Phe				
		355					360					365							
Ile	Gly	Ala	Ile	Val	Ala	Ala	Thr	Ala	Ser	Glu	Ser	Val	Tyr	Ser	Lys				
		370				375					380								
Gln	Gly	Leu	Ile	Asp	Thr	Phe	Gly	Phe	Thr	Gly	Lys	Tyr	Glu	Asn	Arg				
385					390					395					400				
Ser	Pro	Gly	Thr	Gln	Gly	Gly	Tyr	Gln	Ala	Ala	Gly	Val	Cys	Val	Ala				
				405				410					415						
Met	Ala	Phe	Gly	Leu	Val	Gly	Gly	Ala	Ile	Val	Gly	Phe	Ile	Leu	Lys				
			420					425					430						
Phe	Pro	Ile	Trp	Gly	Asp	Ala	Ala	Asp	Asp	Tyr	Cys	Phe	Asp	Asp	Glu				
			435				440					445							
Ala	Tyr	Trp	Glu	Leu	Pro	Glu	Glu	Glu	Glu	Thr	Ile	Pro	Pro	Val	Leu				
			450			455					460								
Glu	Tyr	Asn	Asn	His	Met	Thr	Gln	Gln	Lys	His	Gln	Glu	Thr	Pro	Glu				
465					470					475					480				
Thr	Ser	Phe	Ser	Val	Val	Glu	Ser												
				485															

<210> 249

<211> 388

<212> PRT

<213> Homo sapiens

<400> 249

Asn Leu Ser Asp Met Glu Asn Glu Phe Tyr Tyr Arg Tyr Pro Ser Phe  
1 5 10 15

Gln Asp Val His Val Met Val Phe Val Gly Phe Gly Phe Leu Met Thr  
20 25 30

Phe Leu Gln Arg Tyr Gly Phe Ser Ala Val Gly Phe Asn Phe Leu Leu  
35 40 45

Ala Ala Phe Gly Ile Gln Trp Ala Leu Leu Met Gln Gly Trp Phe His  
50 55 60

Phe Leu Gln Asp Arg Tyr Ile Val Val Gly Val Glu Asn Leu Ile Asn  
65 70 75 80

Ala Asp Phe Cys Val Ala Ser Val Cys Val Ala Phe Gly Ala Val Leu  
85 90 95

Gly Lys Val Ser Pro Ile Gln Leu Leu Ile Met Thr Phe Phe Gln Val  
100 105 110

Thr Leu Phe Ala Val Asn Glu Phe Ile Leu Leu Asn Leu Leu Lys Val  
115 120 125

Lys Asp Ala Gly Gly Ser Met Thr Ile His Thr Phe Gly Ala Tyr Phe  
130 135 140

Gly Leu Thr Val Thr Arg Ile Leu Tyr Arg Arg Asn Leu Glu Gln Ser  
145 150 155 160

Lys Glu Arg Gln Asn Ser Val Tyr Gln Ser Asp Leu Phe Ala Met Ile  
165 170 175

Gly Thr Leu Phe Leu Trp Met Tyr Trp Pro Ser Phe Asn Ser Ala Ile  
180 185 190

Ser Tyr His Gly Asp Ser Gln His Arg Ala Ala Ile Asn Thr Tyr Cys  
195 200 205

Ser Leu Ala Ala Cys Val Leu Thr Ser Val Ala Ile Ser Ser Ala Leu  
210 215 220

His Lys Lys Gly Lys Leu Asp Met Val His Ile Gln Asn Ala Thr Leu  
 225 230 235 240  
 Ala Gly Gly Val Ala Val Gly Thr Ala Ala Glu Met Met Leu Met Pro  
 245 250 255  
 Tyr Gly Ala Leu Ile Ile Gly Phe Val Cys Gly Ile Ile Ser Thr Leu  
 260 265 270  
 Gly Phe Val Tyr Leu Thr Pro Phe Leu Glu Ser Arg Leu His Ile Gln  
 275 280 285  
 Asp Thr Cys Gly Ile Asn Asn Leu His Gly Ile Pro Gly Ile Ile Gly  
 290 295 300  
 Gly Ile Val Gly Ala Val Thr Ala Ala Ser Ala Ser Leu Glu Val Tyr  
 305 310 315 320  
 Gly Lys Glu Gly Leu Val His Ser Phe Asp Phe Gln Gly Phe Asn Gly  
 325 330 335  
 Asp Trp Thr Ala Arg Thr Gln Gly Lys Phe Gln Ile Tyr Gly Leu Leu  
 340 345 350  
 Val Thr Leu Ala Met Ala Leu Met Gly Gly Ile Ile Val Gly Leu Ile  
 355 360 365  
 Leu Arg Leu Pro Phe Trp Gly Gln Pro Ser Asp Glu Asn Cys Phe Glu  
 370 375 380  
 Asp Ala Val Tyr  
 385

<210> 250

<211> 373

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ammonium  
 Transporter Family domain sequence

<400> 250

Gly Leu Val Arg Ser Lys Asn Val Leu Asn Ile Leu Tyr Lys Asn Phe  
 1 5 10 15

Gln Asp Val Ala Ile Gly Val Leu Ala Tyr Trp Gly Phe Gly Tyr Ser



275                                      280                                      285  
 Gly Ile Trp Gly Gly Ile Ala Val Gly Ile Phe Ala Ala Leu Tyr Val  
 290                                      295                                      300  
 Asn Thr Ser Gly Ile Tyr Gly Gly Leu Leu Tyr Gly Asn Ser Lys Gln  
 305                                      310                                      315                                      320  
 Leu Gly Val Gln Leu Ile Gly Ile Ala Val Ile Leu Ala Tyr Ala Phe  
 325                                      330                                      335  
 Gly Val Thr Phe Ile Leu Gly Leu Leu Leu Gly Leu Thr Leu Gly Leu  
 340                                      345                                      350  
 Arg Val Ser Glu Glu Glu Glu Lys Val Gly Leu Asp Leu Ala Glu His  
 355                                      360                                      365  
 Gly Glu Thr Ala Tyr  
 370

<210> 251  
 <211> 446  
 <212> PRT  
 <213> Homo sapiens

<400> 251  
 Met Arg Leu Asp Glu His Asp Phe Leu Gly Gln Phe Ser Cys Ser Leu  
 1                                      5                                      10                                      15  
 Gly Thr Ile Val Ser Ser Lys Lys Ile Thr Arg Pro Leu Leu Leu Leu  
 20                                      25                                      30  
 Asn Asp Lys Pro Ala Gly Lys Gly Leu Ile Thr Ile Ala Ala Gln Glu  
 35                                      40                                      45  
 Leu Ser Asp Asn Arg Val Ile Thr Leu Ser Leu Ala Gly Arg Arg Leu  
 50                                      55                                      60  
 Asp Lys Lys Asp Leu Phe Gly Lys Ser Asp Pro Phe Leu Glu Phe Tyr  
 65                                      70                                      75                                      80  
 Lys Pro Gly Asp Asp Gly Lys Trp Met Leu Val His Arg Thr Glu Val  
 85                                      90                                      95  
 Ile Lys Tyr Thr Leu Asp Pro Val Trp Lys Pro Phe Thr Val Pro Leu  
 100                                      105                                      110

Val	Ser	Leu	Cys	Asp	Gly	Asp	Met	Glu	Lys	Pro	Ile	Gln	Val	Met	Cys		
		115					120					125					
Tyr	Asp	Tyr	Asp	Asn	Asp	Gly	Gly	His	Asp	Phe	Ile	Gly	Glu	Phe	Gln		
	130					135					140						
Thr	Ser	Val	Ser	Gln	Met	Cys	Glu	Ala	Arg	Asp	Ser	Val	Pro	Leu	Glu		
145					150					155					160		
Phe	Glu	Cys	Ile	Asn	Pro	Lys	Lys	Gln	Arg	Lys	Lys	Lys	Asn	Tyr	Lys		
			165						170					175			
Asn	Ser	Gly	Ile	Ile	Ile	Leu	Arg	Ser	Cys	Lys	Ile	Asn	Arg	Asp	Tyr		
		180						185					190				
Ser	Phe	Leu	Asp	Tyr	Ile	Leu	Gly	Gly	Cys	Gln	Leu	Met	Phe	Thr	Val		
	195						200					205					
Gly	Ile	Asp	Phe	Thr	Ala	Ser	Asn	Gly	Asn	Pro	Leu	Asp	Pro	Ser	Ser		
	210					215					220						
Leu	His	Tyr	Ile	Asn	Pro	Met	Gly	Thr	Asn	Glu	Tyr	Leu	Ser	Ala	Ile		
225				230					235						240		
Trp	Ala	Val	Gly	Gln	Ile	Ile	Gln	Asp	Tyr	Asp	Ser	Asp	Lys	Met	Phe		
			245					250						255			
Pro	Ala	Leu	Gly	Phe	Gly	Ala	Gln	Leu	Pro	Pro	Asp	Trp	Lys	Val	Ser		
		260					265						270				
His	Glu	Phe	Ala	Ile	Asn	Phe	Asn	Pro	Thr	Asn	Pro	Phe	Cys	Ser	Gly		
	275						280					285					
Val	Asp	Gly	Ile	Ala	Gln	Ala	Tyr	Ser	Ala	Cys	Leu	Pro	His	Ile	Arg		
	290				295						300						
Phe	Tyr	Gly	Pro	Thr	Asn	Phe	Ser	Pro	Ile	Val	Asn	His	Val	Ala	Arg		
305					310					315					320		
Phe	Ala	Ala	Gln	Ala	Thr	Gln	Gln	Arg	Thr	Ala	Thr	Gln	Tyr	Phe	Ile		
			325					330						335			
Leu	Leu	Ile	Ile	Thr	Asp	Gly	Val	Ile	Ser	Asp	Met	Glu	Glu	Thr	Arg		
		340						345					350				
His	Ala	Val	Val	Gln	Ala	Ser	Lys	Leu	Pro	Met	Ser	Ile	Ile	Ile	Val		
	355						360					365					



Gly Val Gly Asn Ala Asp Phe Ala Ala Met Glu Phe Leu Asp Gly Asp  
 370 375 380

Ser Arg Met Leu Arg Ser His Thr Gly Glu Glu Ala Ala Arg Asp Ile  
 385 390 395 400

Val Gln Phe Val Pro Phe Arg Glu Phe Arg Asn Ala Ala Lys Glu Thr  
 405 410 415

Leu Ala Lys Ala Val Leu Ala Glu Leu Pro Gln Gln Val Val Gln Tyr  
 420 425 430

Phe Lys His Lys Asn Leu Pro Pro Thr Asn Ser Glu Pro Ala  
 435 440 445

<210> 252

<211> 358

<212> PRT

<213> Homo sapiens

<400> 252

Met Leu Val His Arg Thr Glu Val Ile Lys Tyr Thr Leu Asp Pro Val  
 1 5 10 15

Trp Lys Pro Phe Thr Val Pro Leu Val Ser Leu Cys Asp Gly Asp Met  
 20 25 30

Glu Lys Pro Ile Gln Val Met Cys Tyr Asp Tyr Asp Asn Asp Gly Gly  
 35 40 45

His Asp Phe Ile Gly Glu Phe Gln Thr Ser Val Ser Gln Met Cys Glu  
 50 55 60

Ala Arg Asp Ser Val Pro Leu Glu Phe Glu Cys Ile Asn Pro Lys Lys  
 65 70 75 80

Gln Arg Lys Lys Lys Asn Tyr Lys Asn Ser Gly Ile Ile Ile Leu Arg  
 85 90 95

Ser Cys Lys Ile Asn Arg Asp Tyr Ser Phe Leu Asp Tyr Ile Leu Gly  
 100 105 110

Gly Cys Gln Leu Met Phe Thr Val Gly Ile Asp Phe Thr Ala Ser Asn  
 115 120 125

Gly Asn Pro Leu Asp Pro Ser Ser Leu His Tyr Ile Asn Pro Met Gly  
 130 135 140

Thr	Asn	Glu	Tyr	Leu	Ser	Ala	Ile	Trp	Ala	Val	Gly	Gln	Ile	Ile	Gln	145	150	155	160
Asp	Tyr	Asp	Ser	Asp	Lys	Met	Phe	Pro	Ala	Leu	Gly	Phe	Gly	Ala	Gln	165	170	175	
Leu	Pro	Pro	Asp	Trp	Lys	Val	Ser	His	Glu	Phe	Ala	Ile	Asn	Phe	Asn	180	185	190	
Pro	Thr	Asn	Pro	Phe	Cys	Ser	Gly	Val	Asp	Gly	Ile	Ala	Gln	Ala	Tyr	195	200	205	
Ser	Ala	Cys	Leu	Pro	His	Ile	Arg	Phe	Tyr	Gly	Pro	Thr	Asn	Phe	Ser	210	215	220	
Pro	Ile	Val	Asn	His	Val	Ala	Arg	Phe	Ala	Ala	Gln	Ala	Thr	Gln	Gln	225	230	235	240
Arg	Thr	Ala	Thr	Gln	Tyr	Phe	Ile	Leu	Leu	Ile	Ile	Thr	Asp	Gly	Val	245	250	255	
Ile	Ser	Asp	Met	Glu	Glu	Thr	Arg	His	Ala	Val	Val	Gln	Ala	Ser	Lys	260	265	270	
Leu	Pro	Met	Ser	Ile	Ile	Ile	Val	Gly	Val	Gly	Asn	Ala	Asp	Phe	Ala	275	280	285	
Ala	Met	Glu	Phe	Leu	Asp	Gly	Asp	Ser	Arg	Met	Leu	Arg	Ser	His	Thr	290	295	300	
Gly	Glu	Glu	Ala	Ala	Arg	Asp	Ile	Val	Gln	Phe	Val	Pro	Phe	Arg	Glu	305	310	315	320
Phe	Arg	Asn	Ala	Ala	Lys	Glu	Thr	Leu	Ala	Lys	Ala	Val	Leu	Ala	Glu	325	330	335	
Leu	Pro	Gln	Gln	Val	Val	Gln	Tyr	Phe	Lys	His	Lys	Asn	Leu	Pro	Pro	340	345	350	
Thr	Asn	Ser	Glu	Pro	Ala											355			

<210> 253

<211> 537

<212> PRT

<213> Homo sapiens

<400> 253

Met	Ala	Ala	Gln	Cys	Val	Thr	Lys	Val	Ala	Leu	Asn	Val	Ser	Cys	Ala
1				5					10					15	
Asn	Leu	Leu	Asp	Lys	Asp	Ile	Gly	Ser	Lys	Ser	Asp	Pro	Leu	Cys	Val
			20					25					30		
Leu	Phe	Leu	Asn	Thr	Ser	Gly	Gln	Gln	Trp	Tyr	Glu	Val	Glu	Arg	Thr
			35				40					45			
Glu	Arg	Ile	Lys	Asn	Cys	Leu	Asn	Pro	Gln	Phe	Ser	Lys	Thr	Phe	Ile
	50					55					60				
Ile	Asp	Tyr	Tyr	Phe	Glu	Val	Val	Gln	Lys	Leu	Lys	Phe	Gly	Val	Tyr
65					70					75					80
Asp	Ile	Asp	Asn	Lys	Thr	Ile	Glu	Leu	Ser	Asp	Asp	Asp	Phe	Leu	Gly
				85					90					95	
Glu	Cys	Glu	Cys	Thr	Leu	Gly	Gln	Ile	Val	Ser	Ser	Lys	Lys	Leu	Thr
			100					105					110		
Arg	Pro	Leu	Val	Met	Lys	Thr	Gly	Arg	Pro	Ala	Gly	Lys	Gly	Ser	Ile
		115					120					125			
Thr	Ile	Ser	Ala	Glu	Glu	Ile	Lys	Asp	Asn	Arg	Val	Val	Leu	Phe	Glu
	130					135					140				
Met	Glu	Ala	Arg	Lys	Leu	Asp	Asn	Lys	Asp	Leu	Phe	Gly	Lys	Ser	Asp
145					150					155					160
Pro	Tyr	Leu	Glu	Phe	His	Lys	Gln	Thr	Ser	Asp	Gly	Asn	Trp	Leu	Met
				165					170					175	
Val	His	Arg	Thr	Glu	Val	Val	Lys	Asn	Asn	Leu	Asn	Pro	Val	Trp	Arg
			180					185					190		
Pro	Phe	Lys	Ile	Ser	Leu	Asn	Ser	Leu	Cys	Tyr	Gly	Asp	Met	Asp	Lys
		195					200					205			
Thr	Ile	Lys	Val	Glu	Cys	Tyr	Asp	Tyr	Asp	Asn	Asp	Gly	Ser	His	Asp
	210					215					220				
Leu	Ile	Gly	Thr	Phe	Gln	Thr	Thr	Met	Thr	Lys	Leu	Lys	Glu	Ala	Ser
225					230					235					240
Arg	Ser	Ser	Pro	Val	Glu	Phe	Glu	Cys	Ile	Asn	Glu	Lys	Lys	Arg	Gln

				245				250				255				
Lys	Lys	Lys	Ser	Tyr	Lys	Asn	Ser	Gly	Val	Ile	Ser	Val	Lys	Gln	Cys	
			260				265						270			
Glu	Ile	Thr	Val	Glu	Cys	Thr	Phe	Leu	Asp	Tyr	Ile	Met	Gly	Gly	Cys	
			275				280						285			
Gln	Leu	Asn	Phe	Thr	Val	Gly	Val	Asp	Phe	Thr	Gly	Ser	Asn	Gly	Asp	
			290				295						300			
Pro	Arg	Ser	Pro	Asp	Ser	Leu	His	Tyr	Ile	Ser	Pro	Asn	Gly	Val	Asn	
305						310									320	
Glu	Tyr	Leu	Thr	Ala	Leu	Trp	Ser	Val	Gly	Leu	Val	Ile	Gln	Asp	Tyr	
			325						330						335	
Asp	Ala	Asp	Lys	Met	Phe	Pro	Ala	Phe	Gly	Phe	Gly	Ala	Gln	Ile	Pro	
			340						345						350	
Pro	Gln	Trp	Gln	Val	Ser	His	Glu	Phe	Pro	Met	Asn	Phe	Asn	Pro	Ser	
			355						360						365	
Asn	Pro	Tyr	Cys	Asn	Gly	Ile	Gln	Gly	Ile	Val	Glu	Ala	Tyr	Arg	Ser	
370						375						380				
Cys	Leu	Pro	Gln	Ile	Lys	Leu	Tyr	Gly	Pro	Thr	Asn	Phe	Ser	Pro	Ile	
385						390						395			400	
Ile	Asn	His	Val	Ala	Arg	Phe	Ala	Ala	Ala	Ala	Thr	Gln	Gln	Gln	Thr	
			405						410						415	
Ala	Ser	Gln	Tyr	Phe	Val	Leu	Leu	Ile	Ile	Thr	Asp	Gly	Val	Ile	Thr	
			420						425						430	
Asp	Leu	Asp	Glu	Thr	Arg	Gln	Ala	Ile	Val	Asn	Ala	Ser	Arg	Leu	Pro	
			435						440						445	
Met	Ser	Ile	Ile	Ile	Val	Gly	Val	Gly	Gly	Ala	Asp	Phe	Ser	Ala	Met	
450						455						460				
Glu	Phe	Leu	Asp	Gly	Asp	Gly	Gly	Ser	Leu	Arg	Ser	Pro	Leu	Gly	Glu	
465						470						475			480	
Val	Ala	Ile	Arg	Asp	Ile	Val	Gln	Phe	Val	Pro	Phe	Arg	Gln	Phe	Gln	
			485						490						495	
Asn	Ala	Pro	Lys	Glu	Ala	Leu	Ala	Gln	Cys	Val	Leu	Ala	Glu	Ile	Pro	

500	505	510
Gln Gln Val Val Gly Tyr Phe Asn Thr Tyr Lys Leu Leu Pro Pro Lys		
515	520	525
Asn Pro Ala Thr Lys Gln Gln Lys Gln		
530	535	
<210> 254		
<211> 537		
<212> PRT		
<213> Homo sapiens		
<400> 254		
Met Ala His Cys Val Thr Leu Val Gln Leu Ser Ile Ser Cys Asp His		
1	5	10 15
Leu Ile Asp Lys Asp Ile Gly Ser Lys Ser Asp Pro Leu Cys Val Leu		
20	25	30
Leu Gln Asp Val Gly Gly Gly Ser Trp Ala Glu Leu Gly Arg Thr Glu		
35	40	45
Arg Val Arg Asn Cys Ser Ser Pro Glu Phe Ser Lys Thr Leu Gln Leu		
50	55	60
Glu Tyr Arg Phe Glu Thr Val Gln Lys Leu Arg Phe Gly Ile Tyr Asp		
65	70	75 80
Ile Asp Asn Lys Thr Pro Glu Leu Arg Asp Asp Asp Phe Leu Gly Gly		
85	90	95
Ala Glu Cys Ser Leu Gly Gln Ile Val Ser Ser Gln Val Leu Thr Leu		
100	105	110
Pro Leu Met Leu Lys Pro Gly Lys Pro Ala Gly Arg Gly Thr Ile Thr		
115	120	125
Val Ser Ala Gln Glu Leu Lys Asp Asn Arg Val Val Thr Met Glu Val		
130	135	140
Glu Ala Arg Asn Leu Asp Lys Lys Asp Phe Leu Gly Lys Ser Asp Pro		
145	150	155 160
Phe Leu Glu Phe Phe Arg Gln Gly Asp Gly Lys Trp His Leu Val Tyr		
165	170	175

Arg Ser Glu Val Ile Lys Asn Asn Leu Asn Pro Thr Trp Lys Arg Phe  
 180 185 190

Ser Val Pro Val Gln His Phe Cys Gly Gly Asn Pro Ser Thr Pro Ile  
 195 200 205

Gln Val Gln Cys Ser Asp Tyr Asp Ser Asp Gly Ser His Asp Leu Ile  
 210 215 220

Gly Thr Phe His Thr Ser Leu Ala Gln Leu Gln Ala Val Pro Ala Glu  
 225 230 235 240

Phe Glu Cys Ile His Pro Glu Lys Gln Gln Lys Lys Lys Ser Tyr Lys  
 245 250 255

Asn Ser Gly Thr Ile Arg Val Lys Ile Cys Arg Val Glu Thr Glu Tyr  
 260 265 270

Ser Phe Leu Asp Tyr Val Met Gly Gly Cys Gln Ile Asn Phe Thr Val  
 275 280 285

Gly Val Asp Phe Thr Gly Ser Asn Gly Asp Pro Ser Ser Pro Asp Ser  
 290 295 300

Leu His Tyr Leu Ser Pro Thr Gly Val Asn Glu Tyr Leu Met Ala Leu  
 305 310 315 320

Trp Ser Val Gly Ser Val Val Gln Asp Tyr Asp Ser Asp Lys Leu Phe  
 325 330 335

Pro Ala Phe Gly Phe Gly Ala Gln Val Pro Pro Asp Trp Gln Val Ser  
 340 345 350

His Glu Phe Ala Leu Asn Phe Asn Pro Ser Asn Pro Tyr Cys Ala Gly  
 355 360 365

Ile Gln Gly Ile Val Asp Ala Tyr Arg Gln Ala Leu Pro Gln Val Arg  
 370 375 380

Leu Tyr Gly Pro Thr Asn Phe Ala Pro Ile Ile Asn His Val Ala Arg  
 385 390 395 400

Phe Ala Ala Gln Ala Ala His Gln Gly Thr Ala Ser Gln Tyr Phe Met  
 405 410 415

Leu Leu Leu Leu Thr Asp Gly Ala Val Thr Asp Val Glu Ala Thr Arg  
 420 425 430

Glu Ala Val Val Arg Ala Ser Asn Leu Pro Met Ser Val Ile Ile Val  
435 440 445

Gly Val Gly Gly Ala Asp Phe Glu Ala Met Glu Gln Leu Asp Ala Asp  
450 455 460

Gly Gly Pro Leu His Thr Arg Ser Gly Gln Ala Ala Ala Arg Asp Ile  
465 470 475 480

Val Gln Phe Val Pro Tyr Arg Arg Phe Gln Asn Ala Pro Arg Glu Ala  
485 490 495

Leu Ala Gln Thr Val Leu Ala Glu Val Pro Thr Gln Leu Val Ser Tyr  
500 505 510

Phe Arg Ala Gln Gly Trp Ala Pro Leu Lys Pro Leu Pro Pro Ser Ala  
515 520 525

Lys Asp Pro Ala Gln Ala Pro Gln Ala  
530 535

<210> 255

<211> 454

<212> PRT

<213> Mus musculus

<400> 255

Met Ala His Cys Val Thr Leu Val Gln Leu Ser Val Ser Cys Glu His  
1 5 10 15

Leu Ile Asp Lys Asp Ile Gly Ser Lys Ser Asp Pro Leu Cys Val Leu  
20 25 30

Leu Gln Asp Val Gly Gly Ala Trp Ala Glu Leu Cys Arg Thr Glu Arg  
35 40 45

Val Arg Asn Cys Ser Ser Pro Glu Phe Ser Lys Thr Leu Gln Ile Glu  
50 55 60

Tyr His Phe Glu Thr Val Gln Lys Leu Arg Phe Gly Ile Tyr Asp Ile  
65 70 75 80

Asp Asn Lys Thr Pro Glu Leu Gly Asp Asp Asp Phe Leu Gly Gly Ala  
85 90 95

Glu Cys Ser Leu Gly Gln Ile Val Ser Ser Gln Thr Leu Thr Leu Pro  
100 105 110

Leu Met Leu Lys Pro Gly Lys Pro Ala Gly Arg Gly Thr Ile Thr Val  
 115 120 125  
 Ser Ala Gln Glu Leu Lys Asp Ser Arg Val Val Thr Met Glu Val Glu  
 130 135 140  
 Ala Arg Asn Leu Asp Lys Lys Asp Phe Leu Gly Lys Ser Asp Pro Phe  
 145 150 155 160  
 Leu Glu Phe Phe Arg Gln Gly Asp Gly Lys Trp Gln Leu Ala Tyr Arg  
 165 170 175  
 Thr Glu Val Val Lys Asn Asn Leu Asn Pro Thr Trp Lys Arg Phe Ser  
 180 185 190  
 Val Ser Leu Gln His Phe Cys Gly Gly Asp Leu Ser Thr Pro Ile Gln  
 195 200 205  
 Val Arg Cys Ser Asp Tyr Asp Ser Asp Gly Ser His Asp Leu Ile Gly  
 210 215 220  
 Thr Phe His Thr Thr Leu Ala Gln Leu Gln Ala Val Pro Ala Glu Phe  
 225 230 235 240  
 Glu Cys Val His Pro Glu Lys Gln Gln Arg Lys Lys Asn Tyr Arg Asn  
 245 250 255  
 Ser Gly Thr Val Arg Val Lys Thr Cys Arg Val Glu Thr Glu Tyr Ser  
 260 265 270  
 Phe Leu Asp Tyr Val Met Gly Gly Cys Gln Ile Asn Phe Thr Val Gly  
 275 280 285  
 Val Asp Phe Thr Gly Ser Asn Gly Asp Pro Ser Ser Pro Asp Ser Leu  
 290 295 300  
 His Tyr Leu Ser Pro Thr Gly Val Asn Glu Tyr Leu Thr Ala Leu Trp  
 305 310 315 320  
 Ser Val Gly Ser Val Val Gln Asp Tyr Asp Ser Asp Lys Leu Phe Pro  
 325 330 335  
 Ala Phe Gly Phe Gly Ala Gln Val Pro Pro Asp Trp Gln Val Ser His  
 340 345 350  
 Glu Phe Ala Leu Asn Phe Asn Pro Ser Asn Pro Tyr Cys Ala Gly Ile  
 355 360 365



Gln Gly Ile Val Asp Ala Tyr Arg Gln Ala Leu Pro Gln Val Arg Leu  
 370 375 380

Tyr Gly Pro Thr Asn Phe Ala Pro Ile Ile Asn His Val Ala Arg Phe  
 385 390 395 400

Ala Ala Gln Ala Ala Gln Gln Arg Ser Ala Ser Gln Tyr Phe Val Leu  
 405 410 415

Leu Leu Leu Thr Asp Gly Ala Val Thr Asp Val Glu Ala Thr Cys Lys  
 420 425 430

Ala Val Val Asp Ala Ser Lys Leu Pro Met Ser Val Ile Ile Val Gly  
 435 440 445

Val Gly Gly Gly His Ser  
 450

<210> 256  
 <211> 94  
 <212> PRT  
 <213> Homo sapiens

<400> 256  
 Leu Ala Gly Arg Arg Leu Asp Lys Lys Asp Leu Phe Gly Lys Ser Asp  
 1 5 10 15

Pro Phe Leu Glu Phe Tyr Lys Pro Gly Asp Asp Gly Lys Trp Met Leu  
 20 25 30

Val His Arg Thr Glu Val Ile Lys Tyr Thr Leu Asp Pro Val Trp Lys  
 35 40 45

Pro Phe Thr Val Pro Leu Val Ser Leu Cys Asp Gly Asp Met Glu Lys  
 50 55 60

Pro Ile Gln Val Met Cys Tyr Asp Tyr Asp Asn Asp Gly Gly His Asp  
 65 70 75 80

Phe Ile Gly Glu Phe Gln Thr Ser Val Ser Gln Met Cys Glu  
 85 90

<210> 257  
 <211> 88  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Protein kinase  
C conserved region 2 domain sequence

<400> 257

Ile Ser Ala Arg Asn Leu Pro Pro Lys Asp Lys Gly Gly Lys Ser Asp  
1 5 10 15

Pro Tyr Val Lys Val Ser Leu Asp Gly Asp Pro Arg Glu Lys Lys Lys  
20 25 30

Thr Lys Val Val Lys Asn Thr Leu Asn Pro Val Trp Asn Glu Thr Phe  
35 40 45

Glu Phe Glu Val Pro Pro Pro Glu Leu Ser Glu Leu Glu Ile Glu Val  
50 55 60

Tyr Asp Lys Asp Arg Phe Ser Arg Asp Asp Phe Ile Gly Arg Val Thr  
65 70 75 80

Ile Pro Leu Ser Asp Leu Leu Leu  
85

<210> 258

<211> 100

<212> PRT

<213> Homo sapiens

<400> 258

Val Ser Gly Gln Asn Leu Leu Asp Arg Asp Val Thr Ser Lys Ser Asp  
1 5 10 15

Pro Phe Cys Val Leu Phe Thr Glu Asn Asn Gly Arg Trp Ile Glu Tyr  
20 25 30

Asp Arg Thr Glu Thr Ala Ile Asn Asn Leu Asn Pro Ala Phe Ser Lys  
35 40 45

Lys Phe Val Leu Asp Tyr His Phe Glu Glu Val Gln Lys Leu Lys Phe  
50 55 60

Ala Leu Phe Asp Gln Asp Lys Ser Ser Met Arg Leu Asp Glu His Asp  
65 70 75 80

Phe Leu Gly Gln Phe Ser Cys Ser Leu Gly Thr Ile Val Ser Ser Lys

85

90

95

Lys Ile Thr Arg  
100

&lt;210&gt; 259

&lt;211&gt; 94

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Protein kinase  
C conserved region 2 domain sequence

&lt;400&gt; 259

Ile Ser Ala Arg Asn Leu Pro Pro Lys Asp Lys Gly Gly Lys Ser Asp  
1 5 10 15

Pro Tyr Val Lys Val Ser Leu Asp Gly Asp Pro Arg Glu Lys Lys Lys  
20 25 30

Thr Lys Val Val Lys Asn Thr Leu Asn Pro Val Trp Asn Glu Thr Phe  
35 40 45

Glu Phe Glu Val Pro Pro Pro Glu Leu Ser Glu Leu Glu Ile Glu Val  
50 55 60

Tyr Asp Lys Asp Arg Phe Ser Arg Asp Asp Phe Ile Gly Arg Val Thr  
65 70 75 80

Ile Pro Leu Ser Asp Leu Leu Leu Gly Gly Arg His Glu Lys  
85 90

&lt;210&gt; 260

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 260

Val Ser Gly Gln Asn Leu Leu Asp Arg Asp Val Thr Ser Lys Ser Asp  
1 5 10 15

Pro Phe Cys Val Leu Phe Thr Glu Asn Asn Gly Arg Trp Ile Glu Tyr  
20 25 30

Asp Arg Thr Glu Thr Ala Ile Asn Asn Leu Asn Pro Ala Phe Ser Lys

35                                      40                                      45  
 Lys Phe Val Leu Asp Tyr His Phe Glu Glu Val Gln Lys Leu Lys Phe  
     50                                      55                                      60  
 Ala Leu Phe Asp Gln Asp Lys Ser Ser Met Arg Leu Asp Glu His Asp  
     65                                      70                                      75                                      80  
 Phe Leu Gly Gln Phe  
                                     85

<210> 261  
 <211> 82  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: C2 domain  
                                     sequence

<400> 261  
 Ile Ser Ala Arg Asn Leu Pro Lys Met Asp Met Asn Gly Leu Ser Asp  
     1                                      5                                      10                                      15  
 Pro Tyr Val Lys Val Asp Leu Asp Gly Asp Pro Lys Asp Thr Lys Lys  
                                     20                                      25                                      30  
 Phe Lys Thr Lys Thr Val Lys Lys Thr Leu Asn Pro Val Trp Asn Glu  
                                     35                                      40                                      45  
 Thr Phe Val Phe Glu Lys Val Pro Leu Pro Asp Leu Ala Ser Leu Arg  
     50                                      55                                      60  
 Phe Ala Val Tyr Asp Glu Asp Arg Phe Ser Arg Asp Asp Phe Ile Gly  
     65                                      70                                      75                                      80  
 Gln Val

<210> 262  
 <211> 85  
 <212> PRT  
 <213> Homo sapiens

<400> 262  
 Leu Ala Gly Arg Arg Leu Asp Lys Lys Asp Leu Phe Gly Lys Ser Asp

1	5	10	15
Pro Phe Leu Glu Phe Tyr Lys Pro Gly Asp Asp Gly Lys Trp Met Leu			
20	25	30	
Val His Arg Thr Glu Val Ile Lys Tyr Thr Leu Asp Pro Val Trp Lys			
35	40	45	
Pro Phe Thr Val Pro Leu Val Ser Leu Cys Asp Gly Asp Met Glu Lys			
50	55	60	
Pro Ile Gln Val Met Cys Tyr Asp Tyr Asp Asn Asp Gly Gly His Asp			
65	70	75	80
Phe Ile Gly Glu Phe			
85			

<210> 263

<211> 82

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: C2 domain  
sequence

<400> 263

Ile Ser Ala Arg Asn Leu Pro Lys Met Asp Met Asn Gly Leu Ser Asp			
1	5	10	15
Pro Tyr Val Lys Val Asp Leu Asp Gly Asp Pro Lys Asp Thr Lys Lys			
20	25	30	
Phe Lys Thr Lys Thr Val Lys Lys Thr Leu Asn Pro Val Trp Asn Glu			
35	40	45	
Thr Phe Val Phe Glu Lys Val Pro Leu Pro Asp Leu Ala Ser Leu Arg			
50	55	60	
Phe Ala Val Tyr Asp Glu Asp Arg Phe Ser Arg Asp Asp Phe Ile Gly			
65	70	75	80
Gln Val			

<210> 264

<211> 174

<212> PRT

<213> Homo sapiens

<400> 264

Met	Gly	Thr	Asn	Glu	Tyr	Leu	Ser	Ala	Ile	Trp	Ala	Val	Gly	Gln	Ile
1				5					10					15	

Ile	Gln	Asp	Tyr	Asp	Ser	Asp	Lys	Met	Phe	Pro	Ala	Leu	Gly	Phe	Gly
		20					25						30		

Ala	Gln	Leu	Pro	Pro	Asp	Trp	Lys	Val	Ser	His	Glu	Phe	Ala	Ile	Asn
		35					40					45			

Phe	Asn	Pro	Thr	Asn	Pro	Phe	Cys	Ser	Gly	Val	Asp	Gly	Ile	Ala	Gln
	50					55					60				

Ala	Tyr	Ser	Ala	Cys	Leu	Pro	His	Ile	Arg	Phe	Tyr	Gly	Pro	Thr	Asn
65					70					75					80

Phe	Ser	Pro	Ile	Val	Asn	His	Val	Ala	Arg	Phe	Ala	Ala	Gln	Ala	Thr
				85					90					95	

Gln	Gln	Arg	Thr	Ala	Thr	Gln	Tyr	Phe	Ile	Leu	Leu	Ile	Ile	Thr	Asp
			100					105						110	

Gly	Val	Ile	Ser	Asp	Met	Glu	Glu	Thr	Arg	His	Ala	Val	Val	Gln	Ala
		115						120						125	

Ser	Lys	Leu	Pro	Met	Ser	Ile	Ile	Ile	Val	Gly	Val	Gly	Asn	Ala	Asp
	130					135						140			

Phe	Ala	Ala	Met	Glu	Phe	Leu	Asp	Gly	Asp	Ser	Arg	Met	Leu	Arg	Ser
145					150					155					160

His	Thr	Gly	Glu	Glu	Ala	Ala	Arg	Asp	Ile	Val	Gln	Phe	Val		
				165						170					

<210> 265

<211> 166

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: von Willebrand  
factor (vWF) type A domain sequence

<400> 265

Met Gly Gly Asn Arg Phe Glu Leu Ala Lys Glu Phe Val Leu Lys Leu  
1 5 10 15

Val Glu Gln Leu Asp Ile Gly Pro Asp Gly Asp Arg Val Gly Leu Val  
20 25 30

Thr Phe Ser Ser Asp Ala Arg Val Leu Phe Pro Leu Asn Asp Ser Gln  
35 40 45

Ser Lys Asp Ala Leu Leu Glu Ala Leu Ala Ser Leu Ser Tyr Ser Leu  
50 55 60

Gly Gly Gly Thr Asn Leu Gly Ala Ala Leu Glu Tyr Ala Leu Glu Asn  
65 70 75 80

Leu Phe Ser Glu Ser Ala Gly Ser Arg Arg Gly Ala Pro Lys Val Leu  
85 90 95

Ile Leu Ile Thr Asp Gly Glu Ser Asn Asp Gly Gly Glu Asp Ile Leu  
100 105 110

Lys Ala Ala Lys Glu Leu Lys Arg Ser Gly Val Lys Val Phe Val Val  
115 120 125

Gly Val Gly Asn Asp Val Asp Glu Glu Glu Leu Lys Lys Leu Ala Ser  
130 135 140

Ala Pro Gly Gly Val Phe Val Val Glu Asp Leu Pro Ser Leu Leu Asp  
145 150 155 160

Leu Leu Ile Asp Leu Leu  
165

<210> 266

<211> 416

<212> PRT

<213> Homo sapiens

<400> 266

Met Leu Ala Leu Leu Val Leu Val Thr Val Ala Leu Ala Ser Ala His  
1 5 10 15

His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val  
20 25 30

Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala Ser Thr Thr

35	40	45
Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr	Gln Ile Lys Pro His	
50	55	60
Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val Thr Val Glu		
65	70	75 80
Asn Val Leu Lys Gln Asn Glu Leu Gln Tyr Lys Val Leu Ile Ser Asn		
85	90	95
Leu Arg Asn Val Val Glu Ala Gln Phe Asp Ser Arg Val Arg Ala Thr		
100	105	110
Gly His Ser Tyr Glu Lys Tyr Asn Lys Trp Glu Thr Ile Glu Ala Trp		
115	120	125
Thr Gln Gln Val Ala Thr Glu Asn Pro Ala Leu Ile Ser Arg Ser Val		
130	135	140
Ile Gly Thr Thr Phe Glu Gly Arg Ala Ile Tyr Leu Leu Lys Val Gly		
145	150	155 160
Lys Ala Gly Gln Asn Lys Pro Ala Ile Phe Met Asp Cys Gly Phe His		
165	170	175
Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Gln Trp Phe Val Arg Glu		
180	185	190
Ala Val Arg Thr Tyr Gly Arg Glu Ile Gln Val Thr Glu Leu Leu Asp		
195	200	205
Lys Leu Asp Phe Tyr Val Leu Pro Val Leu Asn Ile Asp Gly Tyr Ile		
210	215	220
Tyr Thr Trp Thr Lys Ser Arg Phe Trp Arg Lys Thr Arg Ser Thr His		
225	230	235 240
Thr Gly Ser Ser Ile Gly Thr Asp Pro Asn Arg Asn Phe Asp Ala Gly		
245	250	255
Trp Cys Glu Ile Gly Ala Ser Arg Asn Pro Cys Asp Glu Thr Tyr Cys		
260	265	270
Gly Pro Ala Ala Glu Ser Glu Lys Glu Thr Lys Ala Leu Ala Asp Phe		
275	280	285
Ile Arg Asn Lys Leu Ser Ser Ile Lys Ala Tyr Leu Thr Ile His Ser		



290	295	300
Tyr Ser Gln Met Met Ile Tyr Pro Tyr Ser Tyr Ala Tyr Lys Leu Gly		
305	310	315 320
Glu Asn Asn Ala Glu Leu Asn Ala Leu Ala Lys Ala Thr Val Lys Glu		
	325	330 335
Leu Ala Ser Leu His Gly Thr Lys Tyr Thr Tyr Gly Pro Gly Ala Thr		
	340	345 350
Thr Ile Tyr Pro Ala Ala Gly Gly Ser Asp Asp Trp Ala Tyr Asp Gln		
	355	360 365
Gly Ile Arg Tyr Ser Phe Thr Phe Glu Leu Arg Asp Thr Gly Arg Tyr		
	370	375 380
Gly Phe Leu Leu Pro Glu Ser Gln Ile Arg Ala Thr Cys Glu Glu Thr		
385	390	395 400
Phe Leu Ala Ile Lys Tyr Val Ala Ser Tyr Val Leu Glu His Leu Tyr		
	405	410 415

<210> 267  
 <211> 417  
 <212> PRT  
 <213> Homo sapiens

<400> 267

Met Leu Ala Leu Leu Val Leu Val Thr Val Ala Leu Ala Ser Ala His
1 5 10 15
His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val
20 25 30
Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala Ser Thr Thr
35 40 45
Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile Lys Pro His
50 55 60
Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val Thr Val Glu
65 70 75 80

Asn	Val	Leu	Lys	Gln	Asn	Glu	Leu	Gln	Tyr	Lys	Val	Leu	Ile	Ser	Asn	
				85					90					95		
Leu	Arg	Asn	Val	Val	Glu	Ala	Gln	Phe	Asp	Ser	Arg	Val	Arg	Ala	Thr	
			100					105					110			
Gly	His	Ser	Tyr	Glu	Lys	Tyr	Asn	Lys	Trp	Glu	Thr	Ile	Glu	Ala	Trp	
		115					120					125				
Thr	Gln	Gln	Val	Ala	Thr	Glu	Asn	Pro	Ala	Leu	Ile	Ser	Arg	Ser	Val	
	130					135					140					
Ile	Gly	Thr	Thr	Phe	Glu	Gly	Arg	Ala	Ile	Tyr	Leu	Leu	Lys	Val	Gly	
145					150				155					160		
Lys	Ala	Gly	Gln	Asn	Lys	Pro	Ala	Ile	Phe	Met	Asp	Cys	Gly	Phe	His	
			165					170					175			
Ala	Arg	Glu	Trp	Ile	Ser	Pro	Ala	Phe	Cys	Gln	Trp	Phe	Val	Arg	Glu	
		180					185					190				
Ala	Val	Arg	Thr	Tyr	Gly	Arg	Glu	Ile	Gln	Val	Thr	Glu	Leu	Leu	Asp	
	195					200					205					
Lys	Leu	Asp	Phe	Tyr	Val	Leu	Pro	Val	Leu	Asn	Ile	Asp	Gly	Tyr	Ile	
	210					215				220						
Tyr	Thr	Trp	Thr	Lys	Ser	Arg	Phe	Trp	Arg	Lys	Thr	Arg	Ser	Thr	His	
225				230				235						240		
Thr	Gly	Ser	Ser	Cys	Ile	Gly	Thr	Asp	Pro	Asn	Arg	Asn	Phe	Asp	Ala	
			245					250					255			
Gly	Trp	Cys	Glu	Ile	Gly	Ala	Ser	Arg	Asn	Pro	Cys	Asp	Glu	Thr	Tyr	
		260					265					270				
Cys	Gly	Pro	Ala	Ala	Glu	Ser	Glu	Lys	Glu	Thr	Lys	Ala	Leu	Ala	Asp	
	275					280					285					
Phe	Ile	Arg	Asn	Lys	Leu	Ser	Ser	Ile	Lys	Ala	Tyr	Leu	Thr	Ile	His	
	290				295				300							
Ser	Tyr	Ser	Gln	Met	Met	Ile	Tyr	Pro	Tyr	Ser	Tyr	Ala	Tyr	Lys	Leu	
305				310				315						320		
Gly	Glu	Asn	Asn	Ala	Glu	Leu	Asn	Ala	Leu	Ala	Lys	Ala	Thr	Val	Lys	
			325					330					335			

Glu Leu Ala Ser Leu His Gly Thr Lys Tyr Thr Tyr Gly Pro Gly Ala  
 340 345 350

Thr Thr Ile Tyr Pro Ala Ala Gly Gly Ser Asp Asp Trp Ala Tyr Asp  
 355 360 365

Gln Gly Ile Arg Tyr Ser Phe Thr Phe Glu Leu Arg Asp Thr Gly Arg  
 370 375 380

Tyr Gly Phe Leu Leu Pro Glu Ser Gln Ile Arg Ala Thr Cys Glu Glu  
 385 390 395 400

Thr Phe Leu Ala Ile Lys Tyr Val Ala Ser Tyr Val Leu Glu His Leu  
 405 410 415

Tyr

<210> 268

<211> 417

<212> PRT

<213> Homo sapiens

<400> 268

Met Leu Ala Leu Leu Val Leu Val Thr Val Ala Leu Ala Ser Ala His  
 1 5 10 15

His Gly Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val  
 20 25 30

Glu Asp Glu Asn His Ile Asn Ile Ile Arg Glu Leu Ala Ser Thr Thr  
 35 40 45

Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile Lys Pro His  
 50 55 60

Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Thr Val Thr Val Glu  
 65 70 75 80

Asn Val Leu Lys Gln Asn Glu Leu Gln Tyr Lys Val Leu Ile Ser Asn  
 85 90 95

Leu Arg Asn Val Val Glu Ala Gln Phe Asp Ser Arg Val Arg Ala Thr  
 100 105 110

Gly His Ser Tyr Glu Lys Tyr Asn Lys Trp Glu Thr Ile Glu Ala Trp  
 115 120 125

Thr	Gln	Gln	Val	Ala	Thr	Glu	Asn	Pro	Ala	Leu	Ile	Ser	Arg	Ser	Val	130	135	140
Ile	Gly	Thr	Thr	Phe	Glu	Gly	Arg	Ala	Ile	Tyr	Leu	Leu	Lys	Val	Gly	145	150	155
Lys	Ala	Gly	Gln	Asn	Lys	Pro	Ala	Ile	Phe	Met	Asp	Cys	Gly	Phe	His	165	170	175
Ala	Arg	Glu	Trp	Ile	Ser	Pro	Ala	Phe	Cys	Gln	Trp	Phe	Val	Arg	Glu	180	185	190
Ala	Val	Arg	Thr	Tyr	Gly	Arg	Glu	Ile	Gln	Val	Thr	Glu	Leu	Leu	Asn	195	200	205
Lys	Leu	Asp	Phe	Tyr	Val	Leu	Pro	Val	Leu	Asn	Ile	Asp	Gly	Tyr	Ile	210	215	220
Tyr	Thr	Trp	Thr	Lys	Ser	Arg	Phe	Trp	Arg	Lys	Thr	Arg	Ser	Thr	His	225	230	235
Thr	Gly	Ser	Ser	Cys	Ile	Gly	Thr	Asp	Pro	Asn	Arg	Asn	Phe	Asp	Ala	245	250	255
Gly	Trp	Cys	Glu	Ile	Gly	Ala	Ser	Arg	Asn	Pro	Cys	Asp	Glu	Thr	Tyr	260	265	270
Cys	Gly	Pro	Ala	Ala	Glu	Ser	Glu	Lys	Glu	Thr	Lys	Ala	Leu	Ala	Asp	275	280	285
Phe	Ile	Arg	Asn	Lys	Leu	Ser	Ser	Ile	Lys	Ala	Tyr	Leu	Thr	Ile	His	290	295	300
Ser	Tyr	Ser	Gln	Met	Met	Ile	Tyr	Pro	Tyr	Ser	Tyr	Ala	Tyr	Lys	Leu	305	310	315
Gly	Glu	Asn	Asn	Ala	Glu	Leu	Asn	Ala	Leu	Ala	Lys	Ala	Thr	Val	Lys	325	330	335
Glu	Leu	Ala	Ser	Leu	His	Gly	Thr	Lys	Tyr	Thr	Tyr	Gly	Pro	Gly	Ala	340	345	350
Thr	Thr	Ile	Tyr	Pro	Ala	Ala	Gly	Gly	Ser	Asp	Asp	Trp	Ala	Tyr	Asp	355	360	365
Gln	Gly	Ile	Arg	Tyr	Ser	Phe	Thr	Phe	Glu	Leu	Arg	Asp	Thr	Gly	Arg	370	375	380

Tyr Gly Phe Leu Leu Pro Glu Ser Gln Ile Arg Ala Thr Cys Glu Glu  
 385 390 395 400

Thr Phe Leu Ala Ile Lys Tyr Val Ala Ser Tyr Val Leu Glu His Leu  
 405 410 415

Tyr

<210> 269

<211> 416

<212> PRT

<213> Sus scrofa

<400> 269

Met Leu Ala Phe Leu Ile Leu Val Thr Val Thr Leu Ala Ser Ala His  
 1 5 10 15

His Ser Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val  
 20 25 30

Glu Asp Glu Asn Asp Ile Ser Leu Leu His Glu Leu Ala Ser Thr Arg  
 35 40 45

Gln Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile Lys Pro His  
 50 55 60

Ser Thr Val Asp Phe Arg Val Lys Ala Glu Asp Ile Leu Ala Val Glu  
 65 70 75 80

Asp Phe Leu Glu Gln Asn Glu Leu Gln Tyr Glu Val Leu Ile Asn Asn  
 85 90 95

Leu Arg Ser Val Leu Glu Ala Gln Phe Asp Ser Arg Val Arg Thr Thr  
 100 105 110

Gly His Ser Tyr Glu Lys Tyr Asn Asn Trp Glu Thr Ile Glu Ala Trp  
 115 120 125

Thr Lys Gln Val Thr Ser Glu Asn Pro Asp Leu Ile Ser Arg Thr Ala  
 130 135 140

Ile Gly Thr Thr Phe Leu Gly Asn Asn Ile Tyr Leu Leu Lys Val Gly  
 145 150 155 160

Lys Pro Gly Pro Asn Lys Pro Ala Ile Phe Met Asp Cys Gly Phe His



<210> 270

<211> 416

<212> PRT

<213> Canis familiaris

<400> 270

Met Ala Phe Leu Ile Leu Val Thr Leu Ala Leu Ala Ser Ala His Tyr  
1 5 10 15

Ser Gly Glu His Phe Glu Gly Glu Lys Val Phe Arg Val Asn Val Glu  
20 25 30

Asp Glu Asn His Ile Asn Leu Leu His Thr Leu Ala Ser Thr Thr Gln  
35 40 45

Ile Asp Phe Trp Lys Pro Asp Ser Val Thr Gln Ile Lys Pro His Ser  
50 55 60

Thr Ala Asp Phe Arg Val Lys Ala Glu Asp Ile Leu Thr Val Glu Asp  
65 70 75 80

Phe Leu Lys Gln Asn Glu Leu His Tyr Glu Val Leu Ile Asn Asn Leu  
85 90 95

Arg Leu Val Leu Glu Gly Gln Phe Gly Arg Gln Val Pro Ala Thr Gly  
100 105 110

His Ser Tyr Glu Lys Tyr Asn Arg Trp Glu Thr Ile Glu Ala Trp Thr  
115 120 125

Gln Gln Val Thr Ser Glu Asn Pro Asp Leu Ile Ser Arg Arg Ser Ile  
130 135 140

Gly Thr Thr Phe Glu Gly Arg Thr Ile Tyr Leu Leu Lys Val Gly Lys  
145 150 155 160

Ala Gly Gln Asn Lys Pro Ala Ile Phe Met Asp Cys Gly Phe His Ala  
165 170 175

Arg Glu Trp Ile Ser Pro Ala Phe Trp Gln Trp Phe Val Arg Glu Xaa  
180 185 190

Ile Arg Thr Tyr Gly Gln Glu Ile His Met Thr Glu Leu Leu Asp Lys  
195 200 205

Leu	Asp	Phe	Tyr	Val	Leu	Pro	Val	Gly	Asn	Ile	Asp	Gly	Tyr	Val	Tyr			
210																215		220
Thr	Trp	Thr	Lys	Asn	Arg	Met	Trp	Arg	Lys	Thr	Arg	Ser	Thr	Gln	Val			
225																230		235 240
Gly	Thr	Asn	Cys	Val	Gly	Thr	Asp	Pro	Thr	Arg	Asn	Phe	Asp	Ala	Gly			
																245		250 255
Trp	Cys	Lys	Ile	Gly	Ala	Ser	Arg	Asn	Pro	Cys	Asp	Glu	Thr	Tyr	Cys			
																260		265 270
Gly	Pro	Ala	Ala	Glu	Ser	Glu	Lys	Glu	Thr	Lys	Ala	Leu	Ala	Asn	Phe			
																275		280 285
Ile	Arg	Ser	Asn	Leu	Ser	Ser	Ile	Lys	Ala	Tyr	Leu	Thr	Ile	His	Ser			
																290		295 300
Tyr	Ser	Gln	Met	Met	Leu	Tyr	Pro	Tyr	Ser	Tyr	Asp	Tyr	Lys	Leu	Thr			
305																310		315 320
Glu	Asn	Asn	Ala	Glu	Leu	Asn	Ala	Leu	Ala	Lys	Ala	Thr	Val	Lys	Glu			
																325		330 335
Leu	Ala	Thr	Leu	His	Gly	Thr	Lys	Tyr	Thr	Tyr	Gly	Pro	Gly	Ala	Thr			
																340		345 350
Thr	Ile	Tyr	Pro	Ala	Ala	Gly	Gly	Ser	Asp	Asp	Trp	Ala	Tyr	Asp	Gln			
																355		360 365
Gly	Ile	Lys	Tyr	Ser	Phe	Thr	Phe	Glu	Leu	Arg	Asp	Lys	Gly	Arg	Tyr			
																370		375 380
Gly	Phe	Ala	Leu	Pro	Glu	Ser	Gln	Ile	Ser	Pro	Thr	Cys	Glu	Glu	Thr			
385																390		395 400
Leu	Leu	Ala	Ile	Lys	His	Leu	Ala	Arg	Tyr	Val	Leu	Gln	His	Leu	Tyr			
																405		410 415

<210> 271

<211> 82

<212> PRT

<213> Artificial Sequence



<220>

<223> Description of Artificial Sequence:Propep\_M14  
domain sequence

<400> 271

Gln Val Leu Arg Val Lys Val Ala Asp Glu Asp Gln Val Lys Leu Leu  
1 5 10 15

Lys Asp Leu Glu Asn Thr Glu His Leu Glu Leu Asp Phe Trp Lys Pro  
20 25 30

Asp Ser Ala Thr Pro Ile Lys Pro Gly Ser Thr Val Asp Phe Arg Val  
35 40 45

Pro Ala Glu Asp Ile Gln Ala Val Lys Ser Phe Leu Glu Gln Ser Gly  
50 55 60

Ile His Tyr Glu Val Leu Ile Glu Asp Val Gln Glu Leu Leu Glu Glu  
65 70 75 80

Gln Phe

<210> 272

<211> 80

<212> PRT

<213> Homo sapiens

<400> 272

Lys Val Phe Arg Val Asn Val Glu Asp Glu Asn His Ile Asn Ile Ile  
1 5 10 15

Arg Glu Leu Ala Thr Phe Ile Gln Ile Asp Phe Trp Lys Pro Asp Ser  
20 25 30

Val Thr Gln Ile Lys Pro His Ser Thr Val Asp Phe Arg Val Lys Ala  
35 40 45

Glu Asp Thr Val Thr Val Glu Asn Val Leu Lys Gln Asn Glu Leu Gln  
50 55 60

Tyr Lys Val Leu Ile Ser Asn Leu Arg Asn Val Val Glu Ala Gln Phe  
65 70 75 80

<210> 273  
 <211> 125  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Zn\_carbOpept  
 domain sequence

<400> 273  
 Tyr His Asn Leu Glu Glu Ile Tyr Ala Trp Leu Asp Leu Leu Val Ser  
 1 5 10 15  
 Asn Phe Pro Asp Leu Val Ser Lys Val Ser Ile Gly Lys Ser Tyr Glu  
 20 25 30  
 Gly Arg Asp Leu Lys Val Leu Lys Ile Ser Asp Asn Pro Ala Thr Gly  
 35 40 45  
 Glu Asn Glu Pro Glu Val Phe Ala Val Ala Gly Trp Ile His Ala Arg  
 50 55 60  
 Glu Trp Val Thr Ser Ala Thr Leu Leu Trp Leu Leu Lys Glu Leu Val  
 65 70 75 80  
 Ala Asn Tyr Gly Ser Asp Lys Thr Ile Thr Lys Leu Leu Asp Gly Leu  
 85 90 95  
 Asp Leu Phe Tyr Ile Leu Pro Val Phe Asn Pro Asp Gly Tyr Ala Tyr  
 100 105 110  
 Ser Ile Thr Thr Asp Ser Tyr Arg Met Trp Arg Lys Thr  
 115 120 125

<210> 274  
 <211> 118  
 <212> PRT  
 <213> Homo sapiens

<400> 274  
 Tyr Asn Lys Trp Glu Thr Ile Glu Ala Trp Thr Gln Gln Val Ala Thr  
 1 5 10 15  
 Glu Asn Pro Ala Leu Ile Ser Arg Ser Val Ile Gly Thr Thr Phe Glu  
 20 25 30

Gly Arg Ala Ile Tyr Leu Leu Lys Val Gly Lys Ala Gly Gln Asn Lys  
35 40 45

Pro Ala Ile Phe Met Glu Cys Gly Phe His Ala Arg Glu Trp Ile Ser  
50 55 60

Pro Ala Phe Cys Gln Trp Phe Val Arg Glu Ala Val Arg Thr Tyr Gly  
65 70 75 80

Arg Glu Ile Gln Val Thr Glu Leu Leu Asp Lys Leu Asp Phe Tyr Val  
85 90 95

Leu Pro Val Leu Asn Ile Asp Gly Tyr Ile Tyr Thr Trp Thr Lys Ser  
100 105 110

Arg Phe Trp Arg Lys Thr  
115

<210> 275

<211> 101

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Zn\_carbOpept  
domain sequence

<400> 275

Leu Leu Tyr Pro Tyr Gly Tyr Asp Tyr Asn Leu Asn Pro Asp Ala Asn  
1 5 10 15

Asp Leu Asp Glu Leu Ser Asp Leu Lys Ile Ala Ala Asp Ala Leu Ser  
20 25 30

Ala Arg His Gly Thr Tyr Tyr Thr Leu Gly Leu Pro Gly Ser Ser Thr  
35 40 45

Ile Tyr Pro Ala Ser Ala Gly Gly Ser Asp Asp Trp Ala Tyr Asp Val  
50 55 60

Gly Ile Ile Lys Tyr Ala Phe Thr Phe Glu Leu Arg Pro Asp Thr Gly  
65 70 75 80

Ser Tyr Gly Asn Pro Cys Phe Leu Leu Pro Glu Glu Gln Ile Ile Pro  
85 90 95

Thr Gly Ser Glu Glu

100

<210> 276

<211> 91

<212> PRT

<213> Homo sapiens

<400> 276

Trp	Ile	Tyr	Pro	Tyr	Ser	Tyr	Ala	Tyr	Lys	Leu	Gly	Glu	Asn	Asn	Ala
1				5					10					15	

Glu	Leu	Asn	Ala	Leu	Ala	Lys	Ala	Thr	Val	Lys	Glu	Leu	Ala	Ser	Leu
		20						25						30	

His	Gly	Thr	Lys	Tyr	Thr	Tyr	Gly	Pro	Gly	Ala	Thr	Thr	Ile	Tyr	Pro
		35					40						45		

Ala	Ala	Gly	Gly	Ser	Asp	Asp	Trp	Ala	Tyr	Asp	Gln	Gly	Ile	Arg	Tyr
	50					55					60				

Ser	Phe	Thr	Phe	Glu	Leu	Arg	Asp	Thr	Gly	Arg	Tyr	Gly	Phe	Leu	Leu
65					70					75					80

Pro	Glu	Ser	Gln	Ile	Arg	Ala	Thr	Cys	Glu	Glu
			85						90	

<210> 277

<211> 159

<212> PRT

<213> Homo sapiens

<400> 277

Met	Ala	Lys	Ser	Lys	Asn	His	Thr	Thr	His	Asn	Gln	Ser	Arg	Lys	Trp
1				5					10					15	

His	Arg	Asn	Gly	Ile	Lys	Lys	Pro	Arg	Ser	Gln	Arg	Tyr	Glu	Ser	Leu
		20						25					30		

Lys	Gly	Val	Asp	Pro	Lys	Phe	Leu	Arg	Asn	Met	Arg	Phe	Ala	Lys	Lys
	35						40					45			

His	Asn	Lys	Lys	Gly	Leu	Lys	Lys	Met	Gln	Ala	Asn	Asn	Ala	Lys	Ala
	50					55					60				

Met	Ser	Ala	Arg	Ala	Glu	Ala	Ile	Lys	Ala	Leu	Val	Lys	Pro	Lys	Glu
65					70					75					80

Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asp Arg Leu  
85 90 95

Ala Tyr Ile Ala His Pro Lys Leu Gly Lys Arg Ala Arg Ala Arg Ile  
100 105 110

Ala Lys Gly Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Ala Lys  
115 120 125

Ala Lys Asp Gln Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser Val Pro  
130 135 140

Ala Gln Ala Pro Lys Arg Thr Gln Ala Pro Thr Lys Ala Ser Glu  
145 150 155

<210> 278

<211> 157

<212> PRT

<213> Homo sapiens

<400> 278

Met Ala Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp  
1 5 10 15

His Arg Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu  
20 25 30

Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met Arg Phe Ala Lys Lys  
35 40 45

His Asn Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Asn Ala Lys Ala  
50 55 60

Met Ser Ala Arg Ala Glu Ala Ile Lys Ala Leu Val Lys Pro Lys Glu  
65 70 75 80

Val Lys Pro Lys Ile Pro Lys Gly Val Ser Cys Lys Leu Asp Arg His  
85 90 95

Ala Tyr Val Ala His Pro Lys Leu Gly Lys Arg Ala Leu Ala Arg Ile  
100 105 110

Ala Lys Gly Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Ala Lys  
115 120 125

Asp Gln Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser Val Pro Ala Gln

130	135	140
Ala Pro Lys Gly Thr Gln	Ala Pro Thr Lys	Ala Ser Glu
145	150	155

  

<210> 279  
 <211> 155  
 <212> PRT  
 <213> Homo sapiens

  

<400> 279  
 Met Ala Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp  
 1 5 10 15  
 His Arg Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu  
 20 25 30  
 Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met His Phe Ala Lys Lys  
 35 40 45  
 His Asn Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Asn Ala Lys Ala  
 50 55 60  
 Met Ser Ala Arg Ala Glu Ala Ile Lys Ala Leu Val Lys Pro Lys Glu  
 65 70 75 80  
 Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asp Arg Leu  
 85 90 95  
 Ala Tyr Ile Ala His Pro Lys Leu Gly Lys Arg Ala Arg Ala Arg Ile  
 100 105 110  
 Ala Lys Gly Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Asp Gln  
 115 120 125  
 Thr Lys Ala Gln Ala Ala Ala Pro Pro Ser Val Pro Ala Gln Ala Pro  
 130 135 140  
 Lys Gly Ala Gln Ala Pro Thr Lys Ala Ser Glu  
 145 150 155

<210> 280  
 <211> 159  
 <212> PRT  
 <213> Homo sapiens

<400> 280

Met Ala Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp  
1 5 10 15

His Arg Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu  
20 25 30

Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met Arg Phe Ala Lys Lys  
35 40 45

His Asn Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Asn Ala Lys Ala  
50 55 60

Met Ser Ala Arg Ala Glu Ala Ile Lys Ala Leu Val Lys Pro Lys Glu  
65 70 75 80

Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asp Arg Leu  
85 90 95

Ala Tyr Ile Ala His Pro Lys Leu Gly Lys Arg Ala Arg Ala Arg Ile  
100 105 110

Ala Lys Gly Leu Arg Leu Cys Ala Pro Lys Ala Lys Ala Lys Ala Lys  
115 120 125

Ala Lys Asp Gln Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser Val Pro  
130 135 140

Ala Gln Ala Pro Lys Arg Thr Gln Ala Pro Thr Lys Ala Ser Glu  
145 150 155

<210> 281

<211> 189

<212> PRT

<213> Homo sapiens

<400> 281

Met Ala Lys Ser Lys Asn His Asn Thr His Asp Gln Phe Gln Lys Arg  
1 5 10 15

His Arg Asn Gly Ile Lys Lys Pro Gln Ser Gln Arg Ser Val Ser Leu  
20 25 30

Lys Gly Val Asp Pro Lys Phe Leu Arg Asn Met Pro Phe Ala Lys Lys  
35 40 45

His Ser Lys Lys Gly Leu Lys Lys Met Gln Ala Asn Ser Ala Lys Ala

50		55		60
Met Ser Ala Arg Ala Lys Ala Ile Lys Ala Leu Val Lys Pro Lys Glu				
65		70		75 80
Val Lys Pro Lys Ile Pro Lys Gly Val Ser Arg Lys Leu Asn Gln Leu				
	85		90	95
Ala Tyr Thr Gly Tyr Pro Lys Leu Gly Lys His Ala Cys Ala Arg Ile				
	100		105	110
Ala Lys Ala Leu Arg Leu Cys Arg Pro Lys Ala Lys Ala Lys Asp Gln				
	115		120	125
Thr Lys Ala Gln Ala Ala Ala Pro Ala Ser Val Pro Ala Gln Ala Pro				
	130		135	140
Lys Gly Ala Gln Ser Pro Tyr Lys Gly Phe Arg Val Glu Ile Ser Val				
145		150		155 160
Cys Gln Arg Glu Asp Arg Arg Thr Gly Ala Thr Pro Pro Gly Cys His				
	165		170	175
Arg His Gly Ala Gly Val Leu Leu Cys Tyr Leu Tyr Lys				
	180		185	

<210> 282  
 <211> 40  
 <212> PRT  
 <213> Homo sapiens

<400> 282  
 Lys Ser Lys Asn His Thr Thr His Asn Gln Ser Arg Lys Trp His Arg  
 1 5 10 15  
 Asn Gly Ile Lys Lys Pro Arg Ser Gln Arg Tyr Glu Ser Leu Lys Gly  
 20 25 30  
 Val Asp Pro Lys Phe Leu Arg Asn  
 35 40

<210> 283  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence



<220>

<223> Description of Artificial Sequence: Ribosomal\_L29e  
domain sequence

<400> 283

Lys Ser Lys Asn His Thr Asn His Asn Gln Asn Lys Lys Ala His Arg  
1 5 10 15

Asn Gly Ile Lys Lys Pro Gln Lys Lys Arg Tyr Leu Ser Leu Lys Gly  
20 25 30

Val Asp Ala Lys Phe Arg Arg Asn  
35 40

<210> 284

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: tandem repeat  
unique to hRPL29

<400> 284

Lys Ala Lys Ala Lys Ala Lys Ala  
1 5

<210> 285

<211> 790

<212> PRT

<213> Homo sapiens

<400> 285

Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu  
1 5 10 15

Leu Val Pro Thr Met Leu Leu Lys Ser Leu Gly Glu Asp Val Ile Phe  
20 25 30

His Pro Glu Gly Glu Phe Asp Ser Tyr Glu Val Thr Ile Pro Glu Lys  
35 40 45

Leu Ser Phe Arg Gly Glu Val Gln Gly Val Val Ser Pro Val Ser Tyr  
50 55 60

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys

65					70					75					80
Arg	Leu	Leu	Leu	Pro	Arg	His	Leu	Arg	Val	Phe	Ser	Phe	Thr	Glu	His
				85					90					95	
Gly	Glu	Leu	Leu	Glu	Asp	His	Pro	Tyr	Ile	Pro	Lys	Asp	Cys	Asn	Tyr
			100					105					110		
Met	Gly	Ser	Val	Lys	Glu	Ser	Leu	Asp	Ser	Lys	Ala	Thr	Ile	Ser	Thr
		115					120					125			
Cys	Met	Gly	Gly	Leu	Arg	Gly	Val	Phe	Asn	Ile	Asp	Ala	Lys	His	Tyr
	130					135					140				
Gln	Ile	Glu	Pro	Leu	Lys	Ala	Ser	Pro	Ser	Phe	Glu	His	Val	Val	Tyr
145					150					155					160
Leu	Leu	Lys	Lys	Glu	Gln	Phe	Gly	Asn	Gln	Val	Cys	Gly	Leu	Ser	Asp
				165				170						175	
Asp	Glu	Ile	Glu	Trp	Gln	Met	Ala	Pro	Tyr	Glu	Asn	Lys	Ala	Arg	Leu
			180					185					190		
Arg	Asp	Phe	Pro	Gly	Ser	Tyr	Lys	His	Pro	Lys	Tyr	Leu	Glu	Leu	Ile
		195					200					205			
Leu	Leu	Phe	Asp	Gln	Ser	Arg	Tyr	Arg	Phe	Val	Asn	Asn	Asn	Leu	Ser
	210					215					220				
Gln	Val	Ile	His	Asp	Ala	Ile	Leu	Leu	Thr	Gly	Ile	Met	Asp	Thr	Tyr
225					230					235					240
Phe	Gln	Asp	Val	Arg	Met	Arg	Ile	His	Leu	Lys	Ala	Leu	Glu	Val	Trp
				245					250					255	
Thr	Asp	Phe	Asn	Lys	Ile	Arg	Val	Gly	Tyr	Pro	Glu	Leu	Ala	Glu	Val
			260					265					270		
Leu	Gly	Arg	Phe	Val	Ile	Tyr	Lys	Lys	Ser	Val	Leu	Asn	Ala	Arg	Leu
		275					280					285			
Ser	Ser	Asp	Trp	Ala	His	Leu	Tyr	Leu	Gln	Arg	Lys	Tyr	Asn	Asp	Ala
	290					295					300				
Leu	Ala	Trp	Ser	Phe	Gly	Lys	Val	Cys	Ser	Leu	Glu	Tyr	Ala	Gly	Ser
305					310					315					320
Val	Ser	Thr	Leu	Leu	Asp	Thr	Asn	Ile	Leu	Ala	Pro	Ala	Thr	Trp	Ser

325								330					335			
Ala	His	Glu	Leu	Gly	His	Ala	Val	Gly	Met	Ser	His	Asp	Glu	Gln	Tyr	
340								345			350					
Cys	Gln	Cys	Arg	Gly	Arg	Pro	Asn	Cys	Ile	Met	Gly	Ser	Gly	Arg	Thr	
355								360			365					
Gly	Phe	Ser	Asn	Cys	Ser	Tyr	Ile	Ser	Phe	Phe	Lys	His	Ile	Ser	Ser	
370								375			380					
Gly	Ala	Thr	Cys	Leu	Asn	Asn	Ile	Pro	Gly	Leu	Gly	Tyr	Val	Leu	Lys	
385								390			395					
Arg	Cys	Gly	Asn	Lys	Ile	Val	Glu	Asp	Asn	Glu	Glu	Cys	Asp	Cys	Gly	
				405								410				
Ser	Thr	Glu	Glu	Cys	Gln	Lys	Asp	Arg	Cys	Cys	Gln	Ser	Asn	Cys	Lys	
				420								425				
Leu	Gln	Pro	Gly	Ala	Asn	Cys	Ser	Ile	Gly	Leu	Cys	Cys	His	Asp	Cys	
				435								440				
Arg	Phe	Arg	Pro	Ser	Gly	Tyr	Val	Cys	Arg	Gln	Glu	Gly	Asn	Glu	Cys	
				450								455				
Asp	Leu	Ala	Glu	Tyr	Cys	Asp	Gly	Asn	Ser	Ser	Ser	Cys	Pro	Asn	Asp	
465								470								
Val	Tyr	Lys	Gln	Asp	Gly	Thr	Pro	Cys	Lys	Tyr	Glu	Gly	Arg	Cys	Phe	
				485								490				
Arg	Lys	Gly	Cys	Arg	Ser	Arg	Tyr	Met	Gln	Cys	Gln	Ser	Ile	Phe	Gly	
				500								505				
Pro	Asp	Ala	Met	Glu	Ala	Pro	Ser	Glu	Cys	Tyr	Asp	Ala	Val	Asn	Leu	
				515								520				
Ile	Gly	Asp	Gln	Phe	Gly	Asn	Cys	Glu	Ile	Thr	Gly	Ile	Arg	Asn	Phe	
530								535								
Lys	Lys	Cys	Glu	Ser	Ala	Asn	Ser	Ile	Cys	Gly	Arg	Leu	Gln	Cys	Ile	
545								550								
Asn	Val	Glu	Thr	Ile	Pro	Asp	Leu	Pro	Glu	His	Thr	Thr	Ile	Ile	Ser	
				565								570				
Thr	His	Leu	Gln	Ala	Glu	Asn	Leu	Met	Cys	Trp	Gly	Thr	Gly	Tyr	His	

580	585	590
Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp		
595	600	605
Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val		
610	615	620
Asn Ser Ser Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr		
625	630	635
Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp		
	645	650
		655
Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser		
	660	665
		670
Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val		
	675	680
		685
Val Ser Ile Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val		
	690	695
		700
Phe Val Phe Phe Arg Gln Val Ile Gly Asn His Leu Lys Pro Lys Gln		
705	710	715
		720
Glu Lys Met Pro Leu Ser Lys Ala Lys Thr Glu Gln Glu Glu Ser Lys		
	725	730
		735
Thr Lys Thr Val Gln Glu Glu Ser Lys Thr Lys Thr Gly Gln Glu Glu		
	740	745
		750
Ser Glu Ala Lys Thr Gly Gln Glu Glu Ser Lys Ala Lys Thr Gly Gln		
	755	760
		765
Glu Glu Ser Lys Ala Asn Ile Glu Ser Lys Arg Pro Lys Ala Lys Ser		
	770	775
		780
Val Lys Lys Gln Lys Lys		
785	790	

<210> 286

<211> 781

<212> PRT

<213> Homo sapiens

<400> 286

Met	Arg	Ser	Val	Gln	Ile	Phe	Leu	Ser	Gln	Cys	Arg	Leu	Leu	Leu	Leu	1	5	10	15
Leu	Val	Pro	Thr	Met	Leu	Leu	Lys	Ser	Leu	Gly	Glu	Asp	Val	Ile	Phe	20	25	30	
His	Pro	Glu	Gly	Glu	Phe	Asp	Ser	Tyr	Glu	Val	Thr	Ile	Pro	Glu	Lys	35	40	45	
Leu	Ser	Phe	Arg	Gly	Glu	Val	Gln	Gly	Val	Val	Ser	Pro	Val	Ser	Tyr	50	55	60	
Leu	Leu	Gln	Leu	Lys	Gly	Lys	Lys	His	Val	Leu	His	Leu	Trp	Pro	Lys	65	70	75	80
Arg	Leu	Leu	Leu	Pro	Arg	His	Leu	Arg	Val	Phe	Ser	Phe	Thr	Glu	His	85	90	95	
Gly	Glu	Leu	Leu	Glu	Asp	His	Pro	Tyr	Ile	Pro	Lys	Asp	Cys	Asn	Tyr	100	105	110	
Met	Gly	Ser	Val	Lys	Glu	Ser	Leu	Asp	Ser	Lys	Ala	Thr	Ile	Ser	Thr	115	120	125	
Cys	Met	Gly	Gly	Leu	Arg	Gly	Val	Phe	Asn	Ile	Asp	Ala	Lys	His	Tyr	130	135	140	
Gln	Ile	Glu	Pro	Leu	Lys	Ala	Ser	Pro	Ser	Phe	Glu	His	Val	Val	Tyr	145	150	155	160
Leu	Leu	Lys	Lys	Glu	Gln	Phe	Gly	Asn	Gln	Val	Cys	Gly	Leu	Ser	Asp	165	170	175	
Asp	Glu	Ile	Glu	Trp	Gln	Met	Ala	Pro	Tyr	Glu	Asn	Lys	Ala	Arg	Leu	180	185	190	
Arg	Asp	Phe	Pro	Gly	Ser	Tyr	Lys	His	Pro	Lys	Tyr	Leu	Glu	Leu	Ile	195	200	205	
Leu	Leu	Phe	Asp	Gln	Ser	Arg	Tyr	Arg	Phe	Val	Asn	Asn	Asn	Leu	Ser	210	215	220	
Gln	Val	Ile	His	Asp	Ala	Ile	Leu	Leu	Thr	Gly	Ile	Met	Asp	Thr	Tyr	225	230	235	240
Phe	Gln	Asp	Val	Arg	Met	Arg	Ile	His	Leu	Lys	Ala	Leu	Glu	Val	Trp	245	250	255	

Thr Asp Phe Asn Lys Ile Arg Val Gly Tyr Pro Glu Leu Ala Glu Val  
 260 265 270  
 Leu Gly Arg Phe Val Ile Tyr Lys Lys Ser Val Leu Asn Ala Arg Leu  
 275 280 285  
 Ser Ser Asp Trp Ala His Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala  
 290 295 300  
 Leu Ala Trp Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser  
 305 310 315 320  
 Val Ser Thr Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Pro  
 325 330 335  
 Ala His Glu Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr  
 340 345 350  
 Cys Gln Cys Arg Gly Arg Leu Asn Cys Ile Met Gly Ser Gly Arg Thr  
 355 360 365  
 Gly Phe Ser Asn Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser  
 370 375 380  
 Gly Ala Thr Cys Leu Asn Asn Ile Pro Gly Leu Gly Tyr Val Leu Lys  
 385 390 395 400  
 Arg Cys Gly Asn Lys Ile Val Glu Asp Asn Glu Glu Cys Asp Cys Gly  
 405 410 415  
 Ser Thr Glu Glu Cys Gln Lys Asp Arg Cys Cys Gln Ser Asn Cys Lys  
 420 425 430  
 Leu Gln Pro Gly Ala Asn Cys Ser Ile Gly Leu Cys Cys His Asp Cys  
 435 440 445  
 Arg Phe Arg Pro Ser Gly Tyr Val Cys Arg Gln Glu Gly Asn Glu Cys  
 450 455 460  
 Asp Leu Ala Glu Tyr Cys Asp Gly Asn Ser Ser Ser Cys Pro Asn Asp  
 465 470 475 480  
 Val Tyr Lys Gln Asp Gly Thr Pro Cys Lys Tyr Glu Gly Arg Cys Phe  
 485 490 495  
 Arg Lys Gly Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser Ile Phe Gly  
 500 505 510

Pro Asp Ala Met Glu Ala Pro Ser Glu Cys Tyr Asp Ala Val Asn Leu  
 515 520 525

Ile Gly Asp Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe  
 530 535 540

Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile  
 545 550 555 560

Asn Val Glu Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser  
 565 570 575

Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His  
 580 585 590

Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp  
 595 600 605

Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val  
 610 615 620

Asn Ser Ser Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr  
 625 630 635 640

Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp  
 645 650 655

Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser  
 660 665 670

Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val  
 675 680 685

Val Ser Ile Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val  
 690 695 700

Phe Val Phe Phe Arg Gln Val Ile Gly Asn His Leu Lys Pro Lys Gln  
 705 710 715 720

Glu Lys Met Pro Leu Ser Lys Ala Lys Thr Glu Gln Glu Glu Ser Lys  
 725 730 735

Thr Lys Thr Val Gln Glu Glu Ser Lys Thr Lys Thr Gly Gln Glu Glu  
 740 745 750

Ser Glu Ala Lys Thr Gly Gln Glu Glu Ser Lys Ala Asn Ile Glu Ser  
 755 760 765

Lys Arg Pro Lys Ala Lys Ser Val Lys Lys Gln Lys Lys  
770 775 780

<210> 287

<211> 729

<212> PRT

<213> Mus musculus

<400> 287

Met Glu Cys Phe Ile Met Leu Gly Ala Asp Ala Arg Thr Leu Met Arg  
1 5 10 15

Val Thr Leu Leu Leu Leu Trp Leu Lys Ala Leu Pro Ser Leu Ile Asp  
20 25 30

Leu Ser Gln Thr Gly Ser Thr Gln Tyr Leu Ser Ser Pro Glu Val Val  
35 40 45

Ile Pro Leu Lys Val Thr Ser Arg Ala Arg Gly Ala Lys Asn Ser Glu  
50 55 60

Trp Leu Ser Tyr Ser Leu Val Phe Gly Gly Arg Arg His Val Val His  
65 70 75 80

Met Arg Val Lys Lys Leu Leu Val Ser Thr His Ile Pro Val Leu Thr  
85 90 95

Tyr Thr Glu Glu His Thr Pro Leu Ser Asp Tyr Pro Phe Val Pro Ser  
100 105 110

Asp Cys Tyr Tyr His Gly Tyr Val Glu Gly Ala Leu Glu Ser Leu Val  
115 120 125

Ala Phe Ser Ala Cys Asn Gly Gly Leu Gln Gly Val Leu Gln Met Asn  
130 135 140

Gly Phe Ser Tyr Glu Ile Glu Pro Ile Lys His Ser Ser Thr Phe Glu  
145 150 155 160

His Leu Val Tyr Thr Leu Asn Asn Asn Lys Thr Gln Phe Pro Pro Met  
165 170 175

Leu Cys Ser Leu Thr Glu Lys Arg Leu Leu Tyr Gln Pro Phe Gly Val  
180 185 190

Glu Glu Ala Lys Lys Ser Ala Met Lys Gln Asn Tyr Gly Lys Leu Trp  
195 200 205



Pro	His	Met	Trp	Phe	Leu	Glu	Leu	Ala	Val	Val	Val	Asp	Tyr	Gly	Phe	210	215	220	
Phe	Thr	Asn	Ala	Gln	Gln	Asn	Leu	Ser	Lys	Val	Arg	Gly	Asp	Val	Val	225	230	235	240
Leu	Val	Val	Asn	Met	Val	Asp	Ser	Met	Tyr	Lys	Pro	Leu	Asp	Thr	Tyr	245	250	255	
Val	Thr	Leu	Val	Gly	Ile	Glu	Ile	Trp	Asn	Arg	Gly	Asn	Val	Leu	Pro	260	265	270	
Met	Glu	Asn	Ile	His	Gln	Val	Leu	Glu	Asp	Phe	Ser	His	Trp	Lys	Gln	275	280	285	
Ile	Ser	Leu	Ser	Gln	Val	His	His	Asp	Ala	Ala	His	Ile	Phe	Ile	Arg	290	295	300	
Ser	Ser	Leu	Ile	Ser	Val	Leu	Gly	Ile	Ala	Tyr	Ile	Ala	Gly	Ile	Cys	305	310	315	320
Arg	Pro	Pro	Leu	Asp	Cys	Gly	Val	Glu	Asn	Phe	Gln	Gly	Asp	Ala	Trp	325	330	335	
Ser	Leu	Phe	Ala	Asn	Thr	Val	Ala	His	Glu	Leu	Gly	His	Thr	Phe	Gly	340	345	350	
Met	Lys	His	Asp	Glu	Glu	Ser	Cys	Ser	Cys	Gly	Lys	Ser	Gly	Cys	Val	355	360	365	
Met	Ser	Thr	Phe	Arg	Val	Pro	Ala	Glu	Arg	Phe	Thr	Asn	Cys	Ser	Tyr	370	375	380	
Ser	Asp	Phe	Met	Lys	Thr	Thr	Leu	Asn	Gln	Gly	Thr	Cys	Leu	Tyr	Asn	385	390	395	400
His	Pro	Arg	Pro	Gly	Ala	Gly	Phe	Leu	Val	Lys	Arg	Cys	Gly	Asn	Gly	405	410	415	
Met	Val	Glu	Ser	Glu	Glu	Glu	Cys	Asp	Cys	Gly	Ser	Val	Gln	Glu	Cys	420	425	430	
Glu	Gln	Asp	Pro	Cys	Cys	Phe	Leu	Asn	Cys	Thr	Leu	Arg	Pro	Ala	Ala	435	440	445	
Ala	Cys	Ser	Phe	Gly	Leu	Cys	Cys	Lys	Asp	Cys	Lys	Phe	Met	Leu	Leu	450	455	460	

Gly	Glu	Leu	Cys	Arg	Pro	Lys	Ile	Asn	Glu	Cys	Asp	Leu	Pro	Glu	Trp	465	470	475	480
Cys	Asn	Gly	Thr	Ser	His	Gln	Cys	Pro	Glu	Asp	Gly	Tyr	Val	Gln	Asp	485	490	495	
Gly	Val	Pro	Cys	Gly	Ala	Gly	Ala	Tyr	Cys	Tyr	Gln	Lys	Gln	Cys	Asn	500	505	510	
Asn	His	Asp	Gln	Gln	Cys	Arg	Glu	Ile	Phe	Gly	Lys	Gly	Ala	Arg	Ser	515	520	525	
Ala	Ser	His	Asn	Cys	Tyr	Lys	Glu	Ile	Asn	Leu	Gln	Gly	Asn	Arg	Phe	530	535	540	
Gly	His	Cys	Gly	Thr	Asp	Gly	Thr	Val	Phe	Leu	Lys	Cys	Arg	Met	Ser	545	550	555	560
Asp	Val	Phe	Cys	Gly	Lys	Val	His	Cys	Glu	Asn	Val	Glu	Asp	Ile	His	565	570	575	
His	Pro	Gln	Ala	Pro	Tyr	Val	Leu	Gln	Asn	Ile	Tyr	Ala	Asn	Gly	Ile	580	585	590	
Thr	Cys	Trp	Ser	Thr	Gly	His	Cys	Leu	Gly	Met	Gly	Val	Pro	Asp	Val	595	600	605	
Gly	Glu	Val	Lys	Asp	Gly	Thr	Thr	Cys	Gly	Val	Gly	Lys	Ile	Cys	Leu	610	615	620	
His	Lys	Lys	Cys	Val	Ser	Leu	Ser	Val	Leu	Ser	Asn	Ala	Cys	Leu	Pro	625	630	635	640
Glu	Thr	Cys	Asn	Arg	Lys	Gly	Val	Cys	Asn	Asn	Lys	His	His	Cys	His	645	650	655	
Cys	Asp	Tyr	Gly	Trp	Ser	Pro	Pro	Phe	Cys	Leu	His	Arg	Gly	Tyr	Gly	660	665	670	
Gly	Ser	Ile	Asp	Ser	Gly	Pro	Thr	Ser	Gln	Lys	Arg	Arg	Val	Ile	Ile	675	680	685	
Thr	Val	Leu	Ser	Ile	Thr	Val	Pro	Val	Leu	Ser	Ile	Leu	Ile	Cys	Leu	690	695	700	
Leu	Ile	Ala	Gly	Leu	Tyr	Arg	Ile	Tyr	Cys	Lys	Ile	Pro	Ser	Gly	Pro	705	710	715	720

Lys Glu Thr Lys Ala Ser Ser Pro Gly  
725

<210> 288

<211> 722

<212> PRT

<213> Homo sapiens

<400> 288

Met Ala Val Asp Gly Thr Leu Val Tyr Ile Arg Val Thr Leu Leu Leu  
1 5 10 15

Leu Trp Leu Gly Val Phe Leu Ser Ile Ser Gly Tyr Cys Gln Ala Gly  
20 25 30

Pro Ser Gln His Phe Thr Ser Pro Glu Val Val Ile Pro Leu Lys Val  
35 40 45

Ile Ser Arg Gly Arg Ser Ala Lys Ala Pro Gly Trp Leu Ser Tyr Ser  
50 55 60

Leu Arg Phe Gly Gly Gln Lys His Val Val His Met Arg Val Lys Lys  
65 70 75 80

Leu Leu Val Ser Arg His Leu Pro Val Phe Thr Tyr Thr Asp Asp Arg  
85 90 95

Ala Leu Leu Glu Asp Gln Leu Phe Ile Pro Asp Asp Cys Tyr Tyr His  
100 105 110

Gly Tyr Val Glu Ala Ala Pro Glu Ser Leu Val Val Phe Ser Ala Cys  
115 120 125

Phe Gly Gly Phe Arg Gly Val Leu Lys Ile Ser Gly Leu Thr Tyr Glu  
130 135 140

Ile Glu Pro Ile Arg His Ser Ala Thr Phe Glu His Leu Val Tyr Lys  
145 150 155 160

Ile Asn Ser Asn Glu Thr Gln Phe Pro Ala Met Arg Cys Gly Leu Thr  
165 170 175

Glu Lys Glu Val Ala Arg Gln Gln Leu Glu Phe Glu Glu Ala Glu Asn  
180 185 190

Ser Ala Leu Glu Pro Lys Ser Ala Gly Asp Trp Trp Thr His Ala Trp

195	200	205
Phe Leu Glu Leu Val Val Val Val Asn His Asp Phe Phe Ile Tyr Ser		
210	215	220
Gln Ser Asn Ile Ser Lys Val Gln Glu Asp Val Phe Leu Val Val Asn		
225	230	235 240
Ile Val Asp Ser Met Tyr Lys Gln Leu Gly Thr Tyr Ile Ile Leu Ile		
	245	250 255
Gly Ile Glu Ile Trp Asn Gln Gly Asn Val Phe Pro Met Thr Ser Ile		
	260	265 270
Glu Gln Val Leu Asn Asp Phe Ser Gln Trp Lys Gln Ile Ser Leu Ser		
	275	280 285
Gln Leu Gln His Asp Ala Ala His Met Phe Ile Lys Asn Ser Leu Ile		
	290	295 300
Ser Ile Leu Gly Leu Ala Tyr Val Ala Gly Ile Cys Arg Pro Pro Ile		
305	310	315 320
Asp Cys Gly Val Asp Asn Phe Gln Gly Asp Thr Trp Ser Leu Phe Ala		
	325	330 335
Asn Thr Val Ala His Glu Leu Gly His Thr Leu Gly Met Gln His Asp		
	340	345 350
Glu Glu Phe Cys Phe Cys Gly Glu Arg Gly Cys Ile Met Asn Thr Phe		
	355	360 365
Arg Val Pro Ala Glu Lys Phe Thr Asn Cys Ser Tyr Ala Asp Phe Met		
	370	375 380
Lys Thr Thr Leu Asn Gln Gly Ser Cys Leu His Asn Pro Pro Arg Leu		
385	390	395 400
Gly Glu Ile Phe Met Leu Lys Arg Cys Gly Asn Gly Val Val Glu Arg		
	405	410 415
Glu Glu Gln Cys Asp Cys Gly Ser Val Gln Gln Cys Glu Gln Asp Ala		
	420	425 430
Cys Cys Leu Leu Asn Cys Thr Leu Arg Pro Gly Ala Ala Cys Ala Phe		
	435	440 445
Gly Leu Cys Cys Lys Asp Cys Lys Phe Met Pro Ser Gly Glu Leu Cys		

450		455		460
Arg Gln Glu Val Asn Glu Cys Asp Leu Pro Glu Trp Cys Asn Gly Thr				
465		470		480
Ser His Gln Cys Pro Glu Asp Arg Tyr Val Gln Asp Gly Ile Pro Cys				
	485		490	495
Ser Asp Ser Ala Tyr Cys Tyr Gln Lys Arg Cys Asn Asn His Asp Gln				
	500		505	510
His Cys Arg Glu Ile Phe Gly Lys Asp Ala Lys Ser Ala Ser Gln Asn				
	515		520	525
Cys Tyr Lys Glu Ile Asn Ser Gln Gly Asn Arg Phe Gly His Cys Gly				
	530		535	540
Ile Asn Gly Thr Thr Tyr Leu Lys Cys His Ile Ser Asp Val Phe Cys				
545		550		560
Gly Arg Val Gln Cys Glu Asn Val Arg Asp Ile Pro Leu Leu Gln Asp				
	565		570	575
His Phe Thr Leu Gln His Thr His Ile Asn Gly Val Thr Cys Trp Gly				
	580		585	590
Ile Asp Tyr His Leu Arg Met Asn Ile Ser Asp Ile Gly Glu Val Lys				
	595		600	605
Asp Gly Thr Val Cys Gly Pro Gly Lys Ile Cys Ile His Lys Lys Cys				
	610		615	620
Val Ser Leu Ser Val Leu Ser His Val Cys Leu Pro Glu Thr Cys Asn				
625		630		640
Met Lys Gly Ile Cys Asn Asn Lys His His Cys His Cys Gly Tyr Gly				
	645		650	655
Trp Ser Pro Pro Tyr Cys Gln His Arg Gly Tyr Gly Gly Ser Ile Asp				
	660		665	670
Ser Gly Pro Ala Ser Ala Lys Arg Gly Val Phe Leu Pro Leu Ile Val				
	675		680	685
Ile Pro Ser Leu Ser Val Leu Thr Phe Leu Phe Thr Val Gly Leu Leu				
	690		695	700
Met Tyr Leu Arg Gln Cys Ser Gly Pro Lys Glu Thr Lys Ala His Ser				

705 710 715 720

Ser Gly

<210> 289

<211> 722

<212> PRT

<213> Homo sapiens

<400> 289

Met Ala Val Asp Gly Thr Leu Val Tyr Ile Arg Val Thr Leu Leu Leu  
1 5 10 15

Leu Trp Leu Gly Val Phe Leu Ser Ile Ser Gly Tyr Cys Gln Ala Gly  
20 25 30

Pro Ser Gln His Phe Thr Ser Pro Glu Val Val Ile Pro Leu Lys Val  
35 40 45

Ile Ser Arg Gly Arg Ser Ala Lys Ala Pro Gly Trp Leu Ser Tyr Ser  
50 55 60

Leu Arg Phe Gly Gly Gln Lys His Val Val His Met Arg Val Lys Lys  
65 70 75 80

Leu Leu Val Ser Arg His Leu Pro Val Phe Thr Tyr Thr Asp Glu Arg  
85 90 95

Ala Leu Leu Glu Asp Gln Leu Phe Ile Pro Asp Asp Cys Tyr Tyr His  
100 105 110

Gly Tyr Val Glu Gly Ala Pro Glu Ser Leu Val Val Phe Ser Ala Cys  
115 120 125

Phe Gly Gly Phe Arg Gly Val Leu Lys Ile Ser Gly Leu Thr Tyr Glu  
130 135 140

Ile Glu Pro Ile Arg His Ser Ala Thr Phe Glu His Leu Val Tyr Lys  
145 150 155 160

Val Asn Ser Asn Glu Thr Gln Phe Pro Ala Met Arg Cys Gly Leu Thr  
165 170 175

Glu Lys Glu Val Ala Arg Gln Gln Leu Glu Phe Glu Glu Ala Glu Asn  
180 185 190

Ser	Ala	Leu	Glu	Pro	Lys	Ser	Ala	Gly	Asp	Trp	Trp	Thr	His	Ala	Trp	195	200	205
Phe	Leu	Glu	Leu	Val	Val	Val	Val	Asn	His	Asp	Phe	Phe	Ile	Tyr	Ser	210	215	220
Gln	Ser	Asn	Ile	Ser	Lys	Val	Gln	Glu	Asp	Val	Phe	Leu	Val	Val	Asn	225	230	235
Ile	Val	Asp	Ser	Met	Tyr	Gln	Gln	Leu	Gly	Thr	Tyr	Ile	Ile	Leu	Ile	245	250	255
Gly	Ile	Glu	Ile	Trp	Asn	Gln	Gly	Asn	Val	Phe	Pro	Met	Thr	Ser	Ile	260	265	270
Glu	Gln	Val	Leu	Asn	Asp	Phe	Ser	Gln	Trp	Lys	Gln	Ile	Ser	Leu	Ser	275	280	285
Gln	Leu	Gln	His	Asp	Ala	Ala	His	Met	Phe	Ile	Lys	Asn	Ser	Leu	Ile	290	295	300
Ser	Ile	Leu	Gly	Leu	Ala	Tyr	Val	Ala	Gly	Ile	Cys	Arg	Pro	Pro	Ile	305	310	315
Asp	Cys	Gly	Val	Asp	Asn	Phe	Gln	Gly	Asp	Thr	Trp	Ser	Leu	Phe	Ala	325	330	335
Asn	Thr	Val	Ala	His	Glu	Leu	Gly	His	Thr	Leu	Gly	Met	Gln	His	Asp	340	345	350
Glu	Glu	Phe	Cys	Phe	Cys	Gly	Glu	Arg	Gly	Cys	Ile	Met	Asn	Thr	Phe	355	360	365
Arg	Val	Pro	Ala	Glu	Lys	Phe	Thr	Asn	Cys	Ser	Tyr	Ala	Asp	Phe	Met	370	375	380
Lys	Thr	Thr	Leu	Asn	Gln	Gly	Ser	Cys	Leu	His	Asn	Pro	Pro	Arg	Leu	385	390	395
Gly	Glu	Ile	Phe	Met	Leu	Lys	Arg	Cys	Gly	Asn	Gly	Val	Val	Glu	Arg	405	410	415
Glu	Glu	Gln	Cys	Asp	Cys	Gly	Ser	Val	Gln	Gln	Cys	Glu	Gln	Asp	Ala	420	425	430
Cys	Cys	Leu	Leu	Asn	Cys	Thr	Leu	Arg	Pro	Gly	Ala	Ala	Cys	Ala	Phe	435	440	445

Gly Leu Cys Cys Lys Asp Cys Lys Phe Met Pro Ser Gly Glu Leu Cys  
 450 455 460

Arg Gln Glu Val Asn Glu Cys Asp Leu Pro Glu Trp Cys Asn Gly Thr  
 465 470 475 480

Ser His Gln Cys Pro Glu Asp Arg Tyr Val Gln Asp Gly Ile Pro Cys  
 485 490 495

Ser Asp Ser Ala Tyr Cys Tyr Gln Lys Arg Cys Asn Asn His Asp Gln  
 500 505 510

His Cys Arg Glu Ile Phe Gly Lys Asp Ala Lys Ser Ala Ser Gln Asn  
 515 520 525

Cys Tyr Lys Glu Ile Asn Ser Gln Gly Asn Arg Phe Gly His Cys Gly  
 530 535 540

Ile Asn Gly Thr Thr Tyr Leu Lys Cys His Ile Ser Asp Val Phe Cys  
 545 550 555 560

Gly Arg Val Gln Cys Glu Asn Val Arg Asp Ile Pro Leu Leu Gln Asp  
 565 570 575

His Phe Thr Leu Gln His Thr His Ile Asn Gly Val Thr Cys Trp Gly  
 580 585 590

Ile Asp Tyr His Leu Arg Met Asn Ile Ser Asp Ile Gly Glu Val Lys  
 595 600 605

Asp Gly Thr Val Cys Gly Pro Gly Lys Ile Cys Ile His Lys Lys Cys  
 610 615 620

Val Ser Leu Ser Val Leu Ser His Val Cys Leu Pro Glu Thr Cys Asn  
 625 630 635 640

Met Lys Gly Ile Cys Asn Asn Lys His His Cys His Cys Gly Tyr Gly  
 645 650 655

Trp Ser Pro Pro Tyr Cys Gln His Arg Gly Tyr Gly Gly Ser Ile Asp  
 660 665 670

Ser Gly Pro Ala Ser Ala Lys Arg Gly Val Phe Leu Pro Leu Ile Val  
 675 680 685

Ile Pro Ser Leu Ser Val Leu Thr Phe Leu Phe Thr Val Gly Leu Leu  
 690 695 700



Met Tyr Leu Arg Gln Cys Ser Gly Pro Lys Glu Thr Lys Ala His Ser  
705 710 715 720

Ser Gly

<210> 290

<211> 85

<212> PRT

<213> Homo sapiens

<400> 290

His Leu Trp Pro Lys Arg Leu Leu Leu Pro Arg His Leu Arg Val Phe  
1 5 10 15

Ser Phe Thr Glu His Gly Glu Leu Leu Glu Asp His Pro Tyr Ile Pro  
20 25 30

Lys Asp Cys Asn Tyr Met Gly Ser Val Lys Glu Ser Leu Asp Ser Lys  
35 40 45

Ala Thr Ile Ser Thr Cys Met Gly Gly Leu Arg Gly Val Phe Asn Ile  
50 55 60

Asp Ala Lys His Tyr Gln Ile Glu Pro Leu Lys Ala Ser Pro Ser Phe  
65 70 75 80

Glu His Val Val Tyr  
85

<210> 291

<211> 84

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Reprolysin  
family propeptide domain sequence

<400> 291

His Leu Glu Lys Asn Arg Ser Leu Leu Ala Pro Asp Phe Thr Val Thr  
1 5 10 15

Thr Tyr Asp Asp Asp Gly Thr Leu Val Thr Glu His Pro Leu Ile Gln  
20 25 30

Asp His Cys Tyr Tyr Gln Gly Tyr Val Glu Gly Tyr Pro Asn Ser Ala  
 35 40 45

Val Ser Leu Ser Thr Cys Ser Gly Leu Arg Gly Ile Leu Gln Leu Glu  
 50 55 60

Asn Leu Ser Tyr Gly Ile Glu Pro Leu Glu Ser Ser Asp Gly Phe Glu  
 65 70 75 80

His Ile Ile Tyr

<210> 292

<211> 44

<212> PRT

<213> Homo sapiens

<400> 292

Asn Leu Met Cys Trp Gly Thr Gly Tyr His Leu Ser Met Lys Pro Met  
 1 5 10 15

Gly Ile Pro Asp Leu Gly Met Ile Asn Asp Gly Thr Ser Cys Gly Glu  
 20 25 30

Gly Arg Val Cys Phe Lys Lys Asn Cys Val Asn Ser  
 35 40

<210> 293

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ADAM  
 Cysteine-Rich Domain sequence

<400> 293

Gly Leu Val Cys Trp Ser Leu Asp Tyr His Leu Gly Ser Asp Ile Pro  
 1 5 10 15

Asp Leu Gly Met Val Lys Asp Gly Thr Lys Cys Gly Pro Gly Lys Val  
 20 25 30

Cys Ile Asn Gly Gln Cys Val Asp Val  
 35 40

<210> 294  
 <211> 379  
 <212> PRT  
 <213> Homo sapiens

<400> 294

Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Gly	Val	Gly
1				5						10					15	
Gly	Glu	Arg	Ser	Ser	Arg	Pro	Ala	Pro	Ser	Val	Ala	Pro	Glu	Pro	Asp	
			20					25					30			
Gly	Cys	Pro	Val	Cys	Val	Trp	Arg	Gln	His	Ser	Arg	Glu	Leu	Arg	Leu	
		35					40					45				
Glu	Ser	Ile	Lys	Ser	Gln	Ile	Leu	Ser	Lys	Leu	Arg	Leu	Lys	Glu	Ala	
	50					55					60					
Pro	Asn	Ile	Ser	Arg	Glu	Val	Val	Lys	Gln	Leu	Leu	Pro	Lys	Ala	Pro	
65					70					75					80	
Pro	Leu	Gln	Gln	Ile	Leu	Asp	Leu	His	Asp	Phe	Gln	Gly	Asp	Ala	Leu	
				85					90					95		
Gln	Pro	Glu	Asp	Phe	Leu	Glu	Glu	Asp	Glu	Tyr	His	Ala	Thr	Thr	Glu	
			100					105					110			
Thr	Val	Ile	Ser	Met	Ala	Gln	Glu	Thr	Asp	Pro	Ala	Val	Gln	Thr	Asp	
		115					120					125				
Gly	Ser	Pro	Leu	Cys	Cys	His	Phe	His	Phe	Ser	Pro	Lys	Val	Met	Phe	
	130					135					140					
Thr	Lys	Val	Leu	Lys	Ala	Gln	Leu	Trp	Val	Tyr	Leu	Arg	Pro	Val	Pro	
145					150					155					160	
Arg	Pro	Ala	Thr	Val	Tyr	Leu	Gln	Ile	Leu	Arg	Leu	Lys	Pro	Leu	Thr	
				165					170					175		
Gly	Glu	Gly	Thr	Ala	Gly	Gly	Gly	Gly	Gly	Gly	Arg	Arg	His	Ile	Arg	
			180					185					190			
Ile	Arg	Ser	Leu	Lys	Ile	Glu	Leu	His	Ser	Arg	Ser	Gly	His	Trp	Gln	
		195					200					205				
Ser	Ile	Asp	Phe	Lys	Gln	Val	Leu	His	Ser	Trp	Phe	Arg	Gln	Pro	Gln	
	210						215					220				

Ser Asn Trp Gly Ile Glu Ile Asn Ala Phe Asp Pro Ser Gly Thr Asp  
 225 230 235 240

Leu Ala Val Thr Ser Leu Gly Pro Gly Ala Glu Gly Leu His Pro Phe  
 245 250 255

Met Glu Leu Arg Val Leu Glu Asn Thr Lys Arg Ser Arg Arg Asn Leu  
 260 265 270

Gly Leu Asp Cys Asp Glu His Ser Ser Glu Ser Arg Cys Cys Arg Tyr  
 275 280 285

Pro Leu Thr Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala  
 290 295 300

Pro Lys Arg Tyr Lys Ala Asn Tyr Cys Ser Gly Gln Cys Glu Tyr Met  
 305 310 315 320

Phe Met Gln Lys Tyr Pro His Thr His Leu Val Gln Gln Ala Asn Pro  
 325 330 335

Arg Gly Ser Ala Gly Pro Cys Cys Thr Pro Thr Lys Met Ser Pro Ile  
 340 345 350

Asn Met Leu Tyr Phe Asn Asp Lys Gln Gln Ile Ile Tyr Gly Lys Ile  
 355 360 365

Pro Gly Met Val Val Asp Arg Cys Gly Cys Ser  
 370 375

<210> 295

<211> 407

<212> PRT

<213> Homo sapiens

<400> 295

Met Val Leu Ala Ala Pro Leu Leu Leu Gly Phe Leu Leu Leu Ala Leu  
 1 5 10 15

Glu Leu Arg Pro Arg Gly Glu Ala Ala Glu Gly Pro Ala Ala Ala Ala  
 20 25 30

Ala Ala Ala Ala Ala Ala Ala Ala Gly Val Gly Gly Glu Arg Ser  
 35 40 45

Ser Arg Pro Ala Pro Ser Val Ala Pro Glu Pro Asp Gly Cys Pro Val

50							55									60
Cys	Val	Trp	Arg	Gln	His	Ser	Arg	Glu	Leu	Arg	Leu	Glu	Ser	Ile	Lys	
65					70					75					80	
Ser	Gln	Ile	Leu	Ser	Lys	Leu	Arg	Leu	Lys	Glu	Ala	Pro	Asn	Ile	Ser	
				85					90					95		
Arg	Glu	Val	Val	Lys	Gln	Leu	Leu	Pro	Lys	Ala	Pro	Pro	Leu	Gln	Gln	
			100					105					110			
Ile	Leu	Asp	Leu	His	Asp	Phe	Gln	Gly	Asp	Ala	Leu	Gln	Pro	Glu	Asp	
	115						120					125				
Phe	Leu	Glu	Glu	Asp	Glu	Tyr	His	Ala	Thr	Thr	Glu	Thr	Val	Ile	Ser	
	130					135					140					
Met	Ala	Gln	Glu	Thr	Asp	Pro	Ala	Val	Gln	Thr	Asp	Gly	Ser	Pro	Leu	
145					150					155					160	
Cys	Cys	His	Phe	His	Phe	Ser	Pro	Lys	Val	Met	Phe	Thr	Lys	Val	Leu	
				165					170					175		
Lys	Ala	Gln	Leu	Trp	Val	Tyr	Leu	Arg	Pro	Val	Pro	Arg	Pro	Ala	Thr	
		180						185					190			
Val	Tyr	Leu	Gln	Ile	Leu	Arg	Leu	Lys	Pro	Leu	Thr	Gly	Glu	Gly	Thr	
	195						200					205				
Ala	Gly	Gly	Gly	Gly	Gly	Gly	Gly	Arg	Arg	His	Ile	Arg	Ile	Arg	Ser	Leu
	210					215					220					
Lys	Ile	Glu	Leu	His	Ser	Arg	Ser	Gly	His	Trp	Gln	Ser	Ile	Asp	Phe	
225					230				235						240	
Lys	Gln	Val	Leu	His	Ser	Trp	Phe	Arg	Gln	Pro	Gln	Ser	Asn	Trp	Gly	
				245					250					255		
Ile	Glu	Ile	Asn	Ala	Phe	Asp	Pro	Ser	Gly	Thr	Asp	Leu	Ala	Val	Thr	
		260						265					270			
Ser	Leu	Gly	Pro	Gly	Ala	Glu	Gly	Leu	His	Pro	Phe	Met	Glu	Leu	Arg	
	275						280					285				
Val	Leu	Glu	Asn	Thr	Lys	Arg	Ser	Arg	Arg	Asn	Leu	Gly	Leu	Asp	Cys	
	290					295				300						
Asp	Glu	His	Ser	Ser	Glu	Ser	Arg	Cys	Cys	Arg	Tyr	Pro	Leu	Thr	Val	

305                      310                      315                      320  
 Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala Pro Lys Arg Tyr  
                                  325                      330                      335  
 Lys Ala Asn Tyr Cys Ser Gly Gln Cys Glu Tyr Met Phe Met Gln Lys  
                                  340                      345                      350  
 Tyr Pro His Thr His Leu Val Gln Gln Ala Asn Pro Arg Gly Ser Ala  
                                  355                      360                      365  
 Gly Pro Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu Tyr  
                                  370                      375                      380  
 Phe Asn Asp Lys Gln Gln Ile Ile Tyr Gly Lys Ile Pro Gly Met Val  
 385                                   390                      395                      400  
 Val Asp Arg Cys Gly Cys Ser  
                                  405

<210> 296  
 <211> 405  
 <212> PRT  
 <213> Mus musculus

<400> 296

Met Val Leu Ala Ala Pro Leu Leu Leu Gly Phe Leu Leu Leu Ala Leu  
   1                                  5                                  10                                  15  
 Glu Leu Arg Pro Arg Gly Glu Ala Ala Glu Gly Pro Ala Ala Ala Ala  
                                   20                                  25                                  30  
 Ala Ala Ala Ala Ala Ala Ala Gly Val Gly Gly Glu Arg Ser Ser Arg  
                                   35                                  40                                  45  
 Pro Ala Pro Ser Ala Pro Pro Glu Pro Asp Gly Cys Pro Val Cys Val  
                                   50                                  55                                  60  
 Trp Arg Gln His Ser Arg Glu Leu Arg Leu Glu Ser Ile Lys Ser Gln  
   65                                  70                                  75                                  80  
 Ile Leu Ser Lys Leu Arg Leu Lys Glu Ala Pro Asn Ile Ser Arg Glu  
                                   85                                  90                                  95  
 Val Val Lys Gln Leu Leu Pro Lys Ala Pro Pro Leu Gln Gln Ile Leu  
                                   100                                  105                                  110

Asp	Leu	His	Asp	Phe	Gln	Gly	Asp	Ala	Leu	Gln	Pro	Glu	Asp	Phe	Leu	115	120	125
Glu	Glu	Asp	Glu	Tyr	His	Ala	Thr	Thr	Glu	Thr	Val	Ile	Ser	Met	Ala	130	135	140
Gln	Glu	Thr	Asp	Pro	Ala	Val	Gln	Thr	Asp	Gly	Ser	Pro	Leu	Cys	Cys	145	150	155
His	Phe	His	Phe	Ser	Pro	Lys	Val	Met	Phe	Thr	Lys	Val	Leu	Lys	Ala	165	170	175
Gln	Leu	Trp	Val	Tyr	Leu	Arg	Pro	Val	Pro	Arg	Pro	Ala	Thr	Val	Tyr	180	185	190
Leu	Gln	Ile	Leu	Arg	Leu	Lys	Pro	Leu	Thr	Gly	Glu	Gly	Thr	Ala	Gly	195	200	205
Gly	Gly	Gly	Gly	Gly	Arg	Arg	His	Ile	Arg	Ile	Arg	Ser	Leu	Lys	Ile	210	215	220
Glu	Leu	His	Ser	Arg	Ser	Gly	His	Trp	Gln	Ser	Ile	Asp	Phe	Lys	Gln	225	230	235
Val	Leu	His	Ser	Trp	Phe	Arg	Gln	Pro	Gln	Ser	Asn	Trp	Gly	Ile	Glu	245	250	255
Ile	Asn	Ala	Phe	Asp	Pro	Ser	Gly	Thr	Asp	Leu	Ala	Val	Thr	Ser	Leu	260	265	270
Gly	Pro	Gly	Ala	Glu	Gly	Leu	His	Pro	Phe	Met	Glu	Leu	Arg	Val	Leu	275	280	285
Glu	Asn	Thr	Lys	Arg	Ser	Arg	Arg	Asn	Leu	Gly	Leu	Asp	Cys	Asp	Glu	290	295	300
His	Ser	Ser	Glu	Ser	Arg	Cys	Cys	Arg	Tyr	Pro	Leu	Thr	Val	Asp	Phe	305	310	315
Glu	Ala	Phe	Gly	Trp	Asp	Trp	Ile	Ile	Ala	Pro	Lys	Arg	Tyr	Lys	Ala	325	330	335
Asn	Tyr	Cys	Ser	Gly	Gln	Cys	Glu	Tyr	Met	Phe	Met	Gln	Lys	Tyr	Pro	340	345	350
His	Thr	His	Leu	Val	Gln	Gln	Ala	Asn	Pro	Arg	Gly	Ser	Ala	Gly	Pro	355	360	365

Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu Tyr Phe Asn  
 370 375 380

Asp Lys Gln Gln Ile Ile Tyr Gly Lys Ile Pro Gly Met Val Val Asp  
 385 390 395 400

Arg Cys Gly Cys Ser  
 405

<210> 297

<211> 405

<212> PRT

<213> Mus musculus

<400> 297

Met Val Leu Ala Ala Pro Leu Leu Leu Gly Phe Leu Leu Leu Ala Leu  
 1 5 10 15

Glu Leu Arg Pro Arg Gly Glu Ala Ala Glu Gly Pro Ala Ala Ala Ala  
 20 25 30

Ala Ala Ala Ala Ala Ala Ala Gly Val Gly Gly Glu Arg Ser Ser Arg  
 35 40 45

Pro Ala Pro Ser Ala Pro Pro Glu Pro Asp Gly Cys Pro Val Cys Val  
 50 55 60

Trp Arg Gln His Ser Arg Glu Leu Arg Leu Glu Ser Ile Lys Ser Gln  
 65 70 75 80

Ile Leu Ser Lys Leu Arg Leu Lys Glu Ala Pro Asn Ile Ser Arg Glu  
 85 90 95

Val Val Lys Gln Leu Leu Pro Lys Ala Pro Pro Leu Gln Gln Ile Leu  
 100 105 110

Asp Leu His Asp Phe Gln Gly Asp Ala Leu Gln Pro Glu Asp Phe Leu  
 115 120 125

Glu Glu Asp Glu Tyr His Ala Thr Thr Glu Thr Val Ile Ser Met Ala  
 130 135 140

Gln Glu Thr Asp Pro Ala Val Gln Thr Asp Gly Ser Pro Leu Cys Cys  
 145 150 155 160

His Phe His Phe Ser Pro Lys Val Met Phe Asn Lys Val Leu Lys Ala  
 165 170 175



Gln Leu Trp Val Tyr Leu Arg Pro Val Pro Arg Pro Ala Thr Val Tyr  
 180 185 190  
 Leu Gln Ile Leu Arg Leu Lys Pro Leu Thr Gly Glu Gly Thr Ala Gly  
 195 200 205  
 Gly Gly Gly Gly Gly Arg Arg His Ile Arg Ile Arg Ser Leu Lys Ile  
 210 215 220  
 Glu Leu His Ser Arg Ser Gly His Trp Gln Ser Ile Asp Phe Lys Gln  
 225 230 235 240  
 Val Leu His Ser Trp Phe Arg Gln Pro Gln Ser Asn Trp Gly Ile Glu  
 245 250 255  
 Ile Asn Ala Phe Asp Pro Ser Gly Thr Asp Leu Ala Val Thr Ser Leu  
 260 265 270  
 Gly Pro Gly Ala Glu Gly Leu His Pro Phe Met Glu Leu Arg Val Leu  
 275 280 285  
 Glu Asn Thr Lys Arg Ser Arg Arg Asn Leu Gly Leu Asp Cys Asp Glu  
 290 295 300  
 His Ser Ser Glu Ser Arg Cys Cys Arg Tyr Pro Leu Thr Val Asp Phe  
 305 310 315 320  
 Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala Pro Lys Arg Tyr Lys Ala  
 325 330 335  
 Asn Tyr Cys Ser Gly Gln Cys Glu Tyr Met Phe Met Gln Lys Tyr Pro  
 340 345 350  
 His Thr His Leu Val Gln Gln Ala Asn Pro Arg Gly Ser Ala Gly Pro  
 355 360 365  
 Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu Tyr Phe Asn  
 370 375 380  
 Asp Lys Gln Gln Ile Ile Tyr Gly Lys Ile Pro Gly Met Val Val Asp  
 385 390 395 400  
 Arg Cys Gly Cys Ser  
 405

<210> 298

<211> 345

<212> PRT

<213> Rattus norvegicus

<400> 298

Pro Glu Pro Asp Gly Cys Pro Val Cys Val Trp Arg Gln His Ser Arg  
1 5 10 15

Arg Val Arg Leu Gly Ser Ile Lys Ser Gln Ile Leu Ser Lys Leu Arg  
20 25 30

Leu Lys Glu Ala Pro Asn Ile Ser Arg Glu Val Val Lys Gln Leu Leu  
35 40 45

Pro Lys Ala Pro Pro Leu Gln Gln Ile Leu Asp Leu His Asp Phe Gln  
50 55 60

Gly Asp Ala Leu Gln Pro Glu Asp Phe Leu Glu Glu Asp Glu Tyr His  
65 70 75 80

Ala Thr Thr Glu Thr Val Ile Ser Met Ala Gln Glu Thr Asp Pro Ala  
85 90 95

Val Gln Thr Asp Gly Ser Pro Leu Cys Cys His Phe His Phe Ser Pro  
100 105 110

Lys Val Met Phe Thr Lys Val Leu Lys Ala Gln Leu Trp Val Tyr Leu  
115 120 125

Arg Pro Val Pro Arg Pro Ala Thr Val Tyr Leu Gln Ile Leu Arg Leu  
130 135 140

Lys Pro Leu Thr Gly Glu Gly Thr Ala Gly Gly Gly Gly Gly Gly Arg  
145 150 155 160

Arg His Ile Arg Ile Arg Ser Leu Lys Ile Glu Leu His Ser Arg Ser  
165 170 175

Gly His Trp Gln Ser Ile Asp Phe Lys Gln Val Leu His Ser Trp Phe  
180 185 190

Arg Gln Pro Gln Ser Asn Trp Gly Ile Glu Ile Asn Ala Phe Asp Pro  
195 200 205

Ser Gly Thr Asp Leu Ala Val Thr Ser Leu Gly Pro Gly Ala Glu Gly  
210 215 220

Cys His Pro Phe Met Glu Leu Arg Val Leu Glu Asn Thr Lys Arg Ser

225		230		235		240									
Arg	Arg	Asn	Leu	Gly	Leu	Asp	Cys	Asp	Glu	His	Ser	Ser	Glu	Ser	Arg
				245					250					255	
Cys	Cys	Arg	Tyr	Pro	Leu	Thr	Val	Asp	Phe	Glu	Ala	Ser	Gly	Trp	Asp
			260					265					270		
Trp	Ile	Ile	Ala	Pro	Lys	Arg	Tyr	Lys	Ala	Asn	Tyr	Cys	Ser	Gly	Gln
		275					280					285			
Cys	Glu	Tyr	Met	Phe	Met	Gln	Lys	Tyr	Pro	His	Thr	His	Leu	Val	Gln
	290					295					300				
Gln	Ala	Asn	Pro	Arg	Gly	Ser	Ala	Gly	Pro	Cys	Cys	Thr	Pro	Thr	Lys
305					310					315					320
Met	Ser	Pro	Ile	Asn	Met	Leu	Tyr	Phe	Asn	Asp	Lys	Gln	Gln	Ile	Ile
				325					330					335	
Tyr	Gly	Lys	Ile	Pro	Gly	Met	Val	Val							
			340				345								

<210> 299

<211> 95

<212> PRT

<213> Homo sapiens

<400> 299

Cys	Cys	Arg	Tyr	Pro	Leu	Thr	Val	Asp	Phe	Glu	Ala	Phe	Gly	Trp	Asp
1				5					10					15	
Trp	Ile	Ile	Ala	Pro	Lys	Arg	Tyr	Lys	Ala	Asn	Tyr	Cys	Ser	Gly	Gln
			20					25					30		
Cys	Glu	Tyr	Met	Phe	Met	Gln	Lys	Tyr	Pro	His	Thr	His	Leu	Val	Gln
			35				40					45			
Gln	Ala	Asn	Pro	Arg	Gly	Ser	Ala	Gly	Pro	Cys	Cys	Thr	Pro	Thr	Lys
	50					55					60				
Met	Ser	Pro	Ile	Asn	Met	Leu	Tyr	Phe	Asn	Asp	Lys	Gln	Gln	Ile	Ile
65					70					75				80	
Tyr	Gly	Lys	Ile	Pro	Gly	Met	Val	Val	Asp	Arg	Cys	Gly	Cys	Ser	
				85					90					95	

<210> 300  
 <211> 102  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Transforming  
 growth factor beta like domain sequence

<400> 300  
 Cys Arg Arg His Asp Leu Tyr Val Asp Phe Lys Asp Leu Gly Trp Asp  
 1 5 10 15  
 Asp Trp Ile Ile Ala Pro Lys Gly Tyr Asn Ala Tyr Tyr Cys Glu Gly  
 20 25 30  
 Glu Cys Pro Phe Pro Leu Ser Glu Arg Leu Asn Ala Thr Asn His Ala  
 35 40 45  
 Ile Val Gln Ser Leu Val His Ala Leu Asp Pro Gly Ala Val Pro Lys  
 50 55 60  
 Pro Cys Cys Val Pro Thr Lys Leu Ser Pro Leu Ser Met Leu Tyr Tyr  
 65 70 75 80  
 Asp Asp Asp Gly Asn Val Val Leu Arg Asn Tyr Pro Asn Met Val Val  
 85 90 95  
 Glu Glu Cys Gly Cys Arg  
 100

<210> 301  
 <211> 102  
 <212> PRT  
 <213> Homo sapiens

<400> 301  
 Cys Arg Leu Arg Ser Leu Tyr Val Asp Phe Arg Asp Leu Gly Trp Gly  
 1 5 10 15  
 Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ile Ala Asn Tyr Cys Ser Gly  
 20 25 30  
 Ser Cys Pro Phe Pro Leu Arg Asp Asp Leu Asn Leu Ser Asn His Ala  
 35 40 45

Ile Leu Gln Thr Leu Val Arg Leu Arg Asn Pro Arg Ala Val Pro Gln  
50 55 60

Pro Cys Cys Val Pro Thr Lys Leu Ser Pro Leu Ser Met Leu Tyr Leu  
65 70 75 80

Asp Asp Asn Ser Asn Val Val Leu Arg Leu Tyr Pro Asn Met Ser Val  
85 90 95

Lys Glu Cys Gly Cys Arg  
100

<210> 302  
<211> 105  
<212> PRT  
<213> Homo sapiens

<400> 302  
Cys Pro Val Cys Val Trp Arg Gln His Ser Arg Glu Leu Arg Leu Glu  
1 5 10 15

Ser Ile Lys Ser Gln Ile Leu Ser Lys Leu Arg Leu Lys Glu Ala Pro  
20 25 30

Asn Ile Ser Arg Glu Val Val Lys Gln Leu Leu Pro Lys Ala Pro Pro  
35 40 45

Leu Gln Gln Ile Leu Asp Leu His Asp Phe Gln Gly Asp Ala Leu Gln  
50 55 60

Pro Glu Asp Phe Leu Glu Glu Asp Glu Tyr His Ala Thr Thr Glu Thr  
65 70 75 80

Val Ile Ser Met Ala Gln Glu Thr Asp Pro Ala Val Gln Thr Asp Gly  
85 90 95

Ser Pro Leu Cys Cys His Phe His Phe  
100 105

<210> 303  
<211> 105  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: TGF-beta

propeptide domain sequence

<400> 303

Cys Arg Pro Leu Asp Leu Arg Arg Ser Gln Lys Gln Asp Arg Leu Glu  
1 5 10 15

Ala Ile Glu Gly Gln Ile Leu Ser Lys Leu Gly Leu Arg Arg Arg Pro  
20 25 30

Arg Pro Ser Lys Glu Pro Met Val Val Pro Glu Tyr Met Leu Asp Leu  
35 40 45

Tyr Asn Ala Leu Ser Glu Leu Glu Glu Gly Lys Val Gly Arg Val Pro  
50 55 60

Glu Ile Ser Asp Tyr Asp Gly Arg Glu Ala Gly Arg Ala Asn Thr Ile  
65 70 75 80

Arg Ser Phe Ser His Leu Glu Ser Asp Asp Phe Glu Glu Ser Thr Pro  
85 90 95

Glu Ser His Arg Lys Arg Phe Arg Phe  
100 105

<210> 304

<211> 404

<212> PRT

<213> Homo sapiens

<400> 304

Met Ser Val Lys Pro Ser Trp Gly Pro Gly Pro Ser Glu Gly Val Thr  
1 5 10 15

Ala Val Pro Thr Ser Asp Leu Gly Glu Ile His Asn Trp Thr Glu Leu  
20 25 30

Leu Asp Leu Phe Asn His Thr Leu Ser Glu Cys His Val Glu Leu Ser  
35 40 45

Gln Ser Thr Lys Arg Val Val Leu Phe Ala Leu Tyr Leu Ala Met Phe  
50 55 60

Val Val Gly Leu Val Glu Asn Leu Leu Val Ile Cys Val Asn Trp Arg  
65 70 75 80

Gly Ser Gly Arg Ala Gly Leu Met Asn Leu Tyr Ile Leu Asn Met Ala  
85 90 95

Ile Ala Asp Leu Gly Ile Val Leu Ser Leu Pro Val Trp Met Leu Glu  
 100 105 110

Val Thr Leu Asp Tyr Thr Trp Leu Trp Gly Ser Phe Ser Cys Arg Phe  
 115 120 125

Thr His Tyr Phe Tyr Phe Val Asn Met Tyr Ser Ser Ile Phe Phe Leu  
 130 135 140

Val Cys Leu Ser Val Asp Arg Tyr Val Thr Leu Thr Ser Ala Ser Pro  
 145 150 155 160

Ser Trp Gln Arg Tyr Gln His Arg Val Arg Arg Ala Met Cys Ala Gly  
 165 170 175

Ile Trp Val Leu Ser Ala Ile Ile Pro Leu Pro Glu Val Val His Ile  
 180 185 190

Gln Leu Val Glu Gly Pro Glu Pro Met Cys Leu Phe Met Ala Pro Phe  
 195 200 205

Glu Thr Tyr Ser Thr Trp Ala Leu Ala Val Ala Leu Ser Thr Thr Ile  
 210 215 220

Leu Gly Phe Leu Leu Pro Phe Pro Leu Ile Thr Val Phe Asn Val Leu  
 225 230 235 240

Thr Ala Cys Arg Leu Arg Gln Pro Gly Gln Pro Lys Ser Arg Arg His  
 245 250 255

Cys Leu Leu Leu Cys Ala Tyr Val Ala Val Phe Val Met Cys Trp Leu  
 260 265 270

Pro Tyr His Val Thr Leu Leu Leu Leu Thr Leu His Gly Thr His Ile  
 275 280 285

Ser Leu His Cys His Leu Val His Leu Leu Tyr Phe Phe Tyr Asp Val  
 290 295 300

Ile Asp Cys Phe Ser Met Leu His Cys Val Ile Asn Pro Ile Leu Tyr  
 305 310 315 320

Asn Phe Leu Ser Pro His Phe Arg Gly Arg Leu Leu Asn Ala Val Val  
 325 330 335

His Tyr Leu Pro Lys Asp Gln Thr Lys Ala Gly Thr Cys Ala Ser Ser  
 340 345 350

Ser Ser Cys Ser Thr Gln His Ser Ile Ile Ile Thr Lys Gly Asp Ser  
 355 360 365

Gln Pro Ala Ala Ala Ala Pro His Pro Glu Pro Ser Leu Ser Phe Gln  
 370 375 380

Ala His His Leu Leu Pro Asn Thr Ser Pro Ile Ser Pro Thr Gln Pro  
 385 390 395 400

Leu Thr Pro Ser

<210> 305

<211> 395

<212> PRT

<213> Mus musculus

<400> 305

Met Ser Val Ile Pro Ser Pro Arg Pro Val Ser Thr Leu Glu Pro Asp  
 1 5 10 15

Asn Asp Phe Arg Asp Ile His Asn Trp Thr Glu Leu Leu His Leu Phe  
 20 25 30

Asn Gln Thr Phe Thr Asp Cys His Ile Glu Phe Asn Glu Asn Thr Lys  
 35 40 45

His Val Val Leu Phe Val Phe Tyr Leu Ala Ile Phe Val Val Gly Leu  
 50 55 60

Val Glu Asn Val Leu Val Ile Cys Val Asn Cys Arg Arg Ser Gly Arg  
 65 70 75 80

Val Gly Met Leu Asn Leu Tyr Ile Leu Asn Met Ala Ile Ala Asp Leu  
 85 90 95

Gly Ile Ile Leu Ser Leu Pro Val Trp Met Leu Glu Val Met Leu Glu  
 100 105 110

Tyr Thr Trp Leu Trp Gly Ser Phe Ser Cys Arg Phe Ile His Tyr Phe  
 115 120 125

Tyr Leu Val Asn Met Tyr Ser Ser Ile Phe Phe Leu Thr Cys Leu Ser  
 130 135 140

Ile Asp Arg Tyr Val Thr Leu Thr Asn Thr Ser Pro Ser Trp Gln Arg



145		150		155		160
His Gln His Arg Ile Arg Arg Ala Val Cys Ala Gly Val Trp Val Leu						
	165		170		175	
Ser Ala Ile Ile Pro Leu Pro Glu Val Val His Ile Gln Leu Leu Asp						
	180		185		190	
Gly Ser Glu Pro Met Cys Leu Phe Leu Ala Pro Phe Glu Thr Tyr Ser						
	195		200		205	
Ala Trp Ala Leu Ala Val Ala Leu Ser Ala Thr Ile Leu Gly Phe Leu						
	210		215		220	
Leu Pro Phe Leu Leu Ile Ala Val Phe Asn Ile Leu Thr Ala Cys Arg						
225		230		235		240
Leu Arg Arg Gln Arg Gln Thr Glu Ser Arg Arg His Cys Leu Leu Met						
	245		250		255	
Trp Ala Tyr Ile Val Val Phe Ala Ile Cys Trp Leu Pro Tyr Gln Val						
	260		265		270	
Thr Met Leu Leu Leu Thr Leu His Gly Thr His Ile Phe Leu His Cys						
	275		280		285	
His Leu Val Asn Leu Leu Tyr Phe Phe Tyr Glu Ile Ile Asp Cys Phe						
	290		295		300	
Ser Met Leu His Cys Val Ala Asn Pro Ile Leu Tyr Asn Phe Leu Ser						
305		310		315		320
Pro Ser Phe Arg Gly Arg Leu Leu Ser Leu Val Val Arg Tyr Leu Pro						
	325		330		335	
Lys Glu Gln Ala Arg Ala Ala Gly Gly Arg Ala Ser Ser Ser Ser Ser						
	340		345		350	
Thr Gln His Ser Ile Ile Ile Thr Lys Glu Gly Ser Leu Pro Leu Gln						
	355		360		365	
Arg Ile Ser Thr Pro Thr Pro Ser Glu Thr Phe Arg Arg Pro Leu Arg						
	370		375		380	
Leu Gln Thr Pro His Leu His Ser Ala Ile Leu						
385		390		395		

<210> 306

<211> 398

<212> PRT

<213> Rattus norvegicus

<400> 306

Met Ser Val Ile Pro Ser Ser Arg Pro Val Ser Thr Leu Ala Pro Asp  
1 5 10 15

Asn Asp Phe Arg Glu Ile His Asn Trp Thr Glu Leu Leu His Leu Phe  
20 25 30

Asn Gln Thr Phe Ser Asp Cys Arg Met Glu Leu Asn Glu Asn Thr Lys  
35 40 45

Gln Val Val Leu Phe Val Phe Tyr Leu Ala Ile Phe Val Val Gly Leu  
50 55 60

Val Glu Asn Val Leu Val Ile Cys Val Asn Cys Arg Arg Ser Gly Arg  
65 70 75 80

Val Gly Met Leu Asn Leu Tyr Ile Leu Asn Met Ala Val Ala Asp Leu  
85 90 95

Gly Ile Ile Leu Ser Leu Pro Val Trp Met Leu Glu Val Met Leu Glu  
100 105 110

Tyr Thr Trp Leu Trp Gly Ser Phe Ser Cys Arg Phe Ile His Tyr Phe  
115 120 125

Tyr Leu Ala Asn Met Tyr Ser Ser Ile Phe Phe Leu Thr Cys Leu Ser  
130 135 140

Ile Asp Arg Tyr Val Thr Leu Thr Asn Thr Ser Pro Ser Trp Gln Arg  
145 150 155 160

His Gln His Arg Ile Arg Arg Ala Val Cys Ala Gly Val Trp Val Leu  
165 170 175

Ser Ala Ile Ile Pro Leu Pro Glu Val Val His Ile Gln Leu Leu Asp  
180 185 190

Gly Ser Glu Pro Met Cys Leu Phe Leu Ala Pro Phe Glu Thr Tyr Ser  
195 200 205

Ala Trp Ala Leu Ala Val Ala Leu Ser Ala Thr Ile Leu Gly Phe Leu  
210 215 220

Leu Pro Phe Pro Leu Ile Ala Val Phe Asn Ile Leu Ser Ala Cys Arg  
 225 230 235 240

Leu Arg Arg Gln Gly Gln Thr Glu Ser Arg Arg His Cys Leu Leu Met  
 245 250 255

Trp Ala Tyr Ile Val Val Phe Ala Ile Cys Trp Leu Pro Tyr His Val  
 260 265 270

Thr Met Leu Leu Leu Thr Leu His Thr Thr His Ile Phe Leu His Cys  
 275 280 285

Asn Leu Val Asn Phe Leu Tyr Phe Phe Tyr Glu Ile Thr Asp Cys Phe  
 290 295 300

Ser Met Leu His Cys Val Ala Asn Pro Ile Leu Tyr Asn Phe Leu Ser  
 305 310 315 320

Pro Ser Phe Arg Gly Arg Leu Leu Ser Leu Val Val Arg Tyr Leu Pro  
 325 330 335

Lys Glu Gln Ala Arg Ala Ala Gly Gly Arg Ala Ser Ser Ser Ser Ser  
 340 345 350

Thr Gln His Ser Ile Ile Ile Thr Lys Glu Gly Ser Leu Leu Ala Ala  
 355 360 365

Ala Asp Leu His Thr His Ala Ile Arg Asn Val Gln Ala Ser Ser Leu  
 370 375 380

Pro Pro Asn Thr Ser Pro Thr Leu Cys Asn Ser Ile Ala Ser  
 385 390 395

<210> 307

<211> 395

<212> PRT

<213> Rattus norvegicus

<400> 307

Met Ser Val Ile Pro Ser Ser Glu Ala Val Ser Thr Leu Ala Pro Asp  
 1 5 10 15

Asn Asp Phe Arg Glu Ile His Asn Trp Thr Glu Leu Leu His Leu Phe  
 20 25 30

Asn Gln Thr Phe Ser Asp Cys His Met Glu Leu Asn Glu Asn Thr Lys  
 35 40 45



Ser Met Leu His Cys Val Ala Asn Pro Ile Leu Tyr Asn Phe Leu Ser  
305 310 315 320

Pro Ser Phe Arg Gly Arg Leu Leu Ser Leu Val Val Arg Tyr Leu Pro  
325 330 335

Lys Glu Gln Ala Arg Ala Ala Gly Gly Arg Ala Ser Ser Ser Ser Ser  
340 345 350

Thr Gln His Ser Ile Ile Ile Thr Lys Glu Gly Ser Leu Pro Leu Gln  
355 360 365

Arg Ile Cys Thr Pro Thr Pro Ser Glu Thr Cys Arg Pro Pro Leu Cys  
370 375 380

Leu Arg Thr Pro His Leu His Ser Ala Ile Pro  
385 390 395

<210> 308

<212> PRT

<213> Rattus norvegicus

<400> 308

<210> 309

<211> 75

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 7tm\_1: domain  
sequence

<400> 309

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
1 5 10 15

Thr Pro Thr Asn Ile Phe Ile Leu Asn Leu Ala Val Ala Asp Leu Leu  
20 25 30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
35 40 45

Ser Glu Asp Trp Pro Phe Gly Ser Ala Leu Cys Lys Leu Val Thr Ala

50                                      55                                      60  
 Leu Asp Val Val Asn Met Tyr Ala Ser Ile Leu  
 65                                      70                                      75

<210> 310  
 <211> 73  
 <212> PRT  
 <213> Homo sapiens

<400> 310  
 Glu Asn Leu Leu Val Ile Cys Val Asn Trp Arg Gly Ser Gly Arg Ala  
 1                                      5                                      10                                      15  
 Gly Leu Met Asn Leu Tyr Ile Leu Asn Met Ala Ile Ala Asp Leu Gly  
 20                                      25                                      30  
 Ile Val Leu Ser Leu Pro Val Trp Met Leu Glu Val Thr Leu Asp Tyr  
 35                                      40                                      45  
 Thr Trp Leu Trp Gly Ser Phe Ser Cys Arg Phe Thr His Tyr Phe Tyr  
 50                                      55                                      60  
 Phe Val Asn Met Tyr Ser Ser Ile Phe  
 65                                      70

<210> 311  
 <211> 87  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: 7tm\_1: domain  
 sequence

<400> 311  
 Phe Leu Leu Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu  
 1                                      5                                      10                                      15  
 Arg Thr Leu Arg Lys Ala Ala Lys Thr Leu Leu Val Val Val Val Val  
 20                                      25                                      30  
 Phe Val Leu Cys Trp Leu Pro Tyr Phe Ile Val Leu Leu Leu Asp Thr  
 35                                      40                                      45  
 Leu Cys Leu Ser Ile Ile Met Ser Ser Thr Cys Glu Leu Glu Arg Val

50                      55                      60  
 Leu Pro Thr Ala Leu Leu Val Thr Leu Trp Leu Ala Tyr Val Asn Ser  
 65                      70                      75                      80

Cys Leu Asn Pro Ile Ile Tyr  
 85

<210> 312  
 <211> 94  
 <212> PRT  
 <213> Homo sapiens

<400> 312  
 Phe Leu Leu Pro Phe Pro Leu Ile Thr Val Phe Asn Val Leu Thr Ala  
 1                      5                      10                      15

Cys Arg Leu Arg Gln Pro Gly Gln Pro Lys Ser Arg Arg His Cys Leu  
 20                      25                      30

Leu Leu Cys Ala Tyr Val Ala Val Phe Val Met Cys Trp Leu Pro Tyr  
 35                      40                      45

His Val Thr Leu Leu Leu Leu Thr Leu His Gly Thr His Ile Ser Leu  
 50                      55                      60

His Cys His Leu Val His Leu Leu Tyr Phe Phe Tyr Asp Val Ile Asp  
 65                      70                      75                      80

Cys Phe Ser Met Leu His Cys Val Ile Asn Pro Ile Leu Tyr  
 85                      90

<210> 313  
 <211> 254  
 <212> PRT  
 <213> Homo sapiens

<400> 313  
 Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
 1                      5                      10                      15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
 20                      25                      30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
 35                      40                      45





sequence

<400> 314

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
1 5 10 15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
20 25 30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
35 40 45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
50 55 60

Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
65 70 75 80

Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
85 90 95

Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
100 105 110

Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
115 120 125

Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
130 135 140

Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Val Leu  
145 150 155 160

Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
165 170 175

Arg Lys Arg Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
180 185 190

Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
195 200 205

Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
210 215 220

Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
225 230 235 240

Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
245 250

<210> 315  
<211> 173  
<212> PRT  
<213> Homo sapiens

<400> 315  
Met Ala Arg Met Asn Arg Pro Ala Pro Val Glu Val Thr Tyr Lys Asn  
1 5 10 15

Met Arg Phe Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys  
20 25 30

Phe Ile Glu Glu Leu Lys Lys Tyr Gly Val Thr Thr Ile Val Arg Val  
35 40 45

Cys Glu Ala Thr Tyr Asp Thr Thr Leu Val Glu Lys Glu Gly Ile His  
50 55 60

Val Leu Asp Trp Pro Phe Asp Asp Gly Ala Pro Pro Ser Asn Gln Ile  
65 70 75 80

Val Asp Asp Trp Leu Ser Leu Val Lys Ile Lys Phe Arg Glu Glu Pro  
85 90 95

Gly Cys Cys Ile Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro  
100 105 110

Val Leu Val Ala Leu Ala Leu Ile Glu Gly Gly Met Lys Tyr Glu Asp  
115 120 125

Ala Val Gln Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys  
130 135 140

Gln Leu Leu Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe  
145 150 155 160

Lys Asp Ser Asn Gly His Arg Asn Asn Cys Cys Ile Gln  
165 170

<210> 316  
<211> 173  
<212> PRT  
<213> Rattus norvegicus

<400> 316

Met Ala Arg Met Asn Arg Pro Ala Pro Val Glu Val Thr Tyr Lys Asn  
1 5 10 15

Met Arg Phe Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys  
20 25 30

Phe Ile Glu Glu Leu Lys Lys Tyr Gly Val Thr Thr Ile Val Arg Val  
35 40 45

Cys Glu Ala Thr Tyr Asp Thr Thr Leu Val Glu Lys Glu Gly Ile His  
50 55 60

Val Leu Asp Trp Pro Phe Asp Asp Gly Ala Pro Pro Ser Asn Gln Ile  
65 70 75 80

Val Asp Asp Trp Leu Ser Leu Val Lys Ile Lys Phe Arg Glu Glu Pro  
85 90 95

Gly Cys Cys Ile Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro  
100 105 110

Val Leu Val Ala Leu Ala Leu Ile Glu Gly Gly Met Lys Tyr Glu Asp  
115 120 125

Ala Val Gln Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys  
130 135 140

Gln Leu Leu Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe  
145 150 155 160

Lys Asp Ser Asn Gly His Arg Asn Asn Trp Cys Ile Gln  
165 170

<210> 317

<211> 167

<212> PRT

<213> Homo sapiens

<400> 317

Met Asn Arg Pro Ala Pro Val Glu Ile Ser Tyr Glu Asn Met Arg Phe  
1 5 10 15

Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys Phe Thr Glu  
20 25 30

Glu Leu Lys Lys Tyr Gly Val Thr Thr Leu Val Arg Val Cys Asp Ala  
           35                          40                          45  
 Thr Tyr Asp Lys Ala Pro Val Glu Lys Glu Gly Ile His Val Leu Asp  
           50                          55                          60  
 Trp Pro Phe Asp Asp Gly Ala Pro Pro Pro Asn Gln Ile Val Asp Asp  
           65                          70                          75                          80  
 Trp Leu Asn Leu Leu Lys Thr Lys Phe Arg Glu Glu Pro Gly Cys Cys  
                           85                          90                          95  
 Val Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro Val Leu Val  
                           100                          105                          110  
 Ala Leu Ala Leu Ile Glu Cys Gly Met Lys Tyr Glu Asp Ala Val Gln  
           115                          120                          125  
 Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys Gln Leu Leu  
           130                          135                          140  
 Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe Arg Asp Thr  
   145                          150                          155                          160  
 Asn Gly His Cys Cys Val Gln  
                           165

<210> 318  
 <211> 167  
 <212> PRT  
 <213> Homo sapiens

<400> 318  
 Met Asn Arg Pro Ala Pro Val Glu Ile Ser Tyr Glu Asp Met Arg Phe  
       1                          5                          10                          15  
 Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys Phe Thr Glu  
           20                          25                          30  
 Glu Leu Lys Lys Tyr Gly Val Thr Thr Leu Val Arg Val Cys Asp Ala  
           35                          40                          45  
 Thr Tyr Asp Lys Ala Pro Val Glu Lys Glu Gly Ile His Val Leu Asp  
           50                          55                          60  
 Trp Pro Phe Asp Asp Gly Ala Pro Pro Pro Asn Gln Ile Val Asp Asp  
       65                          70                          75                          80

Trp Leu Asn Leu Leu Lys Thr Lys Phe Arg Glu Glu Pro Gly Cys Cys  
85 90 95

Val Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro Val Leu Val  
100 105 110

Ala Leu Ala Leu Ile Glu Cys Gly Met Lys Tyr Glu Asp Ala Val Gln  
115 120 125

Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys Gln Leu Leu  
130 135 140

Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe Arg Asp Thr  
145 150 155 160

Asn Gly His Cys Cys Val Gln  
165

<210> 319

<211> 167

<212> PRT

<213> Mus musculus

<400> 319

Met Asn Arg Pro Ala Pro Val Glu Ile Ser Tyr Glu Asn Met Arg Phe  
1 5 10 15

Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys Phe Thr Glu  
20 25 30

Glu Leu Lys Lys Tyr Gly Val Thr Thr Leu Val Arg Val Cys Asp Ala  
35 40 45

Thr Tyr Asp Lys Ala Pro Val Glu Lys Glu Gly Ile His Val Leu Asp  
50 55 60

Trp Pro Phe Asp Asp Gly Ala Pro Pro Pro Asn Gln Ile Val Asp Asp  
65 70 75 80

Trp Leu Asn Leu Leu Lys Thr Leu Phe Arg Glu Glu Pro Gly Cys Cys  
85 90 95

Val Ala Val His Cys Val Ala Gly Ile Gly Arg Ala Pro Val Leu Val  
100 105 110

Ala Leu Ala Leu Ile Glu Cys Gly Met Lys Tyr Glu Asp Ala Val Gln

115	120	125
Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys Gln Leu Leu		
130	135	140
Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe Arg Asp Thr		
145	150	155
		160
Asn Gly His Cys Cys Val Gln		
165		

<210> 320  
 <211> 130  
 <212> PRT  
 <213> Homo sapiens

<400> 320
Pro Ile Thr His Asn Pro Thr Asn Val Thr Leu Asn Lys Phe Ile Glu
1 5 10 15
Glu Leu Lys Lys Tyr Gly Ala Thr Thr Ile Val Arg Val Cys Glu Ala
20 25 30
Thr Tyr Asp Thr Thr Leu Val Glu Lys Glu Gly Ile His Val Leu Asn
35 40 45
Trp Pro Phe Gly Asp Gly Ala Pro Pro Ser Asn Gln Ile Val Ala Asp
50 55 60
Trp Leu His Phe Val Lys Ile Lys Phe Cys Glu Glu Pro Gly Cys Tyr
65 70 75 80
Ile Ala Val Asn Cys Ile Val Gly Leu Gly Lys Ala Pro Val Leu Val
85 90 95
Ala Leu Ala Ser Val Glu Gly Gly Met Lys His Glu Asp Ala Val Gln
100 105 110
Phe Ile Gly Gln Lys Arg Ser Gly Ala Phe Lys Ser Lys Gln Leu Leu
115 120 125
Tyr Leu
130

<210> 321  
 <211> 134

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Y\_phosphatase  
domain sequence

<400> 321

Ser Leu Thr Tyr Gly Asp Phe Thr Val Thr Cys Val Ser Val Glu Lys  
1 5 10 15

Lys Lys Asp Asp Tyr Thr Val Arg Thr Leu Glu Leu Thr Asn Ser Gly  
20 25 30

Asp Asp Glu Thr Arg Thr Val Lys His Tyr His Tyr Thr Gly Trp Pro  
35 40 45

Asp His Gly Val Pro Glu Ser Pro Lys Ser Ile Leu Asp Leu Leu Arg  
50 55 60

Lys Val Arg Lys Ser Lys Gly Thr Pro Asp Asp Gly Pro Ile Val Val  
65 70 75 80

His Cys Ser Ala Gly Ile Gly Arg Thr Gly Thr Phe Ile Ala Ile Asp  
85 90 95

Ile Leu Leu Gln Gln Leu Glu Lys Glu Gly Val Val Asp Val Phe Asp  
100 105 110

Thr Val Lys Lys Leu Arg Ser Gln Arg Pro Gly Met Val Gln Thr Glu  
115 120 125

Glu Gln Tyr Ile Phe Ile  
130

<210> 322

<211> 90

<212> PRT

<213> Homo sapiens

<400> 322

His Val Leu Asn Trp Pro Phe Gly Asp Gly Ala Pro Pro Ser Asn Gln  
1 5 10 15

Ile Val Ala Asp Trp Leu His Phe Val Lys Ile Lys Phe Cys Glu Glu  
20 25 30

Pro Gly Cys Tyr Ile Ala Val Asn Cys Ile Val Gly Leu Gly Lys Ala  
 35 40 45

Pro Val Leu Val Ala Leu Ala Ser Val Glu Gly Gly Met Lys His Glu  
 50 55 60

Asp Ala Val Gln Phe Ile Gly Gln Lys Arg Ser Gly Ala Phe Lys Ser  
 65 70 75 80

Lys Gln Leu Leu Tyr Leu Glu Lys Tyr His  
 85 90

<210> 323

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PTPc\_motif

<400> 323

His Tyr Thr Gly Trp Pro Asp His Gly Val Pro Glu Ser Pro Asp Ser  
 1 5 10 15

Ile Leu Glu Phe Leu Arg Ala Val Lys Lys Ser Leu Asn Lys Ser Ala  
 20 25 30

Asn Asn Gly Pro Val Val Val His Cys Ser Ala Gly Val Gly Arg Thr  
 35 40 45

Gly Thr Phe Val Ala Ile Asp Ile Leu Leu Gln Gln Leu Glu Ala Gly  
 50 55 60

Thr Gly Glu Val Asp Ile Phe Asp Ile Val Lys Glu Leu Arg Ser Gln  
 65 70 75 80

Arg Pro Gly Ala Val Gln Thr Leu Glu Gln Tyr Leu Phe Leu Tyr Arg  
 85 90 95

Ala Leu

<210> 324

<211> 355

<212> PRT

<213> Homo sapiens



<400> 324

Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala  
1 5 10 15

Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr  
20 25 30

Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Val  
35 40 45

Tyr Ser Glu Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg  
50 55 60

Leu Gly Gly Ser Asp Cys Arg Val Lys Ile Asp Thr Lys Ala Ile Pro  
65 70 75 80

Leu Phe Gly Asn Ser Leu Lys Pro Asp Ser Leu Arg Phe Gln Leu Glu  
85 90 95

Thr Ser Leu Lys Arg Leu Gln Cys Pro Arg Val Asp Leu Phe Tyr Leu  
100 105 110

His Met Pro Asp His Ser Thr Pro Val Glu Glu Thr Leu Arg Ala Cys  
115 120 125

His Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn  
130 135 140

Tyr Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn  
145 150 155 160

Gly Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Asn Ala Ile Thr  
165 170 175

Arg Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu  
180 185 190

Arg Phe Tyr Ala Phe Asn Pro Leu Ala Asp Gln Ser Pro Glu Gly Cys  
195 200 205

Gly Ser Phe Trp Gly Thr Leu Gly Pro Gly Ala Asp Cys Cys Phe Pro  
210 215 220

Ser Gly Gly Leu Leu Thr Gly Lys Tyr Lys Tyr Glu Asp Lys Asn Gly  
225 230 235 240

Lys Gln Pro Val Gly Arg Phe Phe Gly Asn Thr Trp Ala Glu Met Tyr

	245		250		255
Arg Asn Arg Tyr Trp Lys Glu His His Phe Glu Gly Ile Ala Leu Val					
	260		265		270
Glu Lys Ala Leu Gln Ala Ala Tyr Gly Ala Ser Ala Pro Ser Met Thr					
	275		280		285
Ser Ala Thr Leu Arg Trp Met Tyr His His Ser Gln Leu Gln Gly Ala					
	290		295		300
His Gly Asp Ala Val Ile Leu Gly Met Ser Ser Leu Glu Gln Leu Glu					
305		310		315	320
Gln Asn Leu Ala Ala Ala Glu Glu Gly Pro Leu Glu Pro Ala Val Val					
	325		330		335
Asp Ala Phe Asn Gln Ala Trp His Leu Val Thr His Glu Cys Pro Asn					
	340		345		350
Tyr Phe Arg					
	355				

<210> 325

<211> 331

<212> PRT

<213> Homo sapiens

<400> 325

Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala					
1		5		10	15
Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr					
	20		25		30
Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Val					
	35		40		45
Tyr Ser Asp Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg					
	50		55		60
Leu Gly Gly Ser Asp Cys Arg Val Lys Ile Asp Thr Lys Ala Ile Pro					
	65		70		75
Leu Phe Gly Asn Ser Leu Lys Pro Asp Ser Leu Arg Phe Gln Leu Glu					
	85		90		95

Thr	Ser	Leu	Lys	Arg	Leu	Gln	Cys	Pro	Arg	Val	Asp	Leu	Phe	Tyr	Leu			
			100					105					110					
His	Met	Pro	Asp	His	Ser	Thr	Pro	Val	Glu	Glu	Thr	Leu	Arg	Ala	Cys			
		115					120					125						
His	Gln	Leu	His	Gln	Glu	Gly	Lys	Phe	Met	Glu	Leu	Gly	Leu	Ser	Asn			
	130					135					140							
Tyr	Ala	Ala	Trp	Glu	Val	Ala	Glu	Ile	Cys	Thr	Leu	Cys	Lys	Ser	Asn			
145					150				155						160			
Gly	Trp	Ile	Leu	Pro	Thr	Val	Tyr	Gln	Gly	Met	Tyr	Asn	Ala	Ile	Thr			
				165				170					175					
Arg	Gln	Val	Glu	Thr	Glu	Leu	Phe	Pro	Cys	Leu	Arg	His	Phe	Gly	Leu			
			180					185					190					
Arg	Phe	Tyr	Ala	Phe	Asn	Pro	Leu	Ala	Gly	Gly	Leu	Leu	Thr	Gly	Lys			
		195				200						205						
Tyr	Lys	Tyr	Glu	Asp	Lys	Asp	Gly	Lys	Gln	Pro	Val	Gly	Arg	Phe	Phe			
	210					215					220							
Gly	Asn	Thr	Trp	Ala	Glu	Met	Tyr	Arg	Asn	Arg	Tyr	Trp	Lys	Glu	His			
225					230				235					240				
His	Phe	Glu	Gly	Ile	Ala	Leu	Val	Glu	Lys	Ala	Leu	Gln	Ala	Ala	Tyr			
				245					250					255				
Gly	Ala	Ser	Ala	Pro	Ser	Met	Thr	Ser	Ala	Thr	Leu	Arg	Trp	Met	Tyr			
			260					265					270					
His	His	Ser	Gln	Leu	Gln	Gly	Ala	His	Gly	Asp	Ala	Val	Ile	Leu	Gly			
		275					280					285						
Met	Ser	Ser	Leu	Glu	Gln	Leu	Glu	Gln	Asn	Leu	Ala	Ala	Ala	Glu	Glu			
		290				295					300							
Gly	Pro	Leu	Glu	Pro	Ala	Val	Val	Asp	Ala	Phe	Asn	Gln	Ala	Trp	His			
305					310				315					320				
Leu	Val	Ala	His	Glu	Cys	Pro	Asn	Tyr	Phe	Arg								
			325						330									

<210> 326

<211> 331

<212> PRT

<213> Homo sapiens

<400> 326

Met	Ser	Arg	Gln	Leu	Ser	Arg	Ala	Arg	Pro	Ala	Thr	Val	Leu	Gly	Ala
1				5					10					15	
Met	Glu	Met	Gly	Arg	Arg	Met	Asp	Ala	Pro	Thr	Ser	Ala	Ala	Val	Thr
			20					25					30		
Arg	Ala	Phe	Leu	Glu	Arg	Gly	His	Thr	Glu	Ile	Asp	Thr	Ala	Phe	Val
		35					40					45			
Tyr	Ser	Glu	Gly	Gln	Ser	Glu	Thr	Ile	Leu	Gly	Gly	Leu	Gly	Leu	Arg
	50					55					60				
Leu	Gly	Gly	Ser	Asp	Cys	Arg	Val	Lys	Ile	Asp	Thr	Lys	Ala	Ile	Pro
65					70					75					80
Leu	Phe	Gly	Asn	Ser	Leu	Lys	Pro	Asp	Ser	Leu	Arg	Phe	Gln	Leu	Glu
			85						90					95	
Thr	Ser	Leu	Lys	Arg	Leu	Gln	Cys	Pro	Arg	Val	Asp	Leu	Phe	Tyr	Leu
		100						105					110		
His	Met	Pro	Asp	His	Ser	Thr	Pro	Val	Glu	Glu	Thr	Leu	Arg	Ala	Cys
	115						120					125			
His	Gln	Leu	His	Gln	Glu	Gly	Lys	Phe	Val	Glu	Leu	Gly	Leu	Ser	Asn
	130					135					140				
Tyr	Ala	Ala	Trp	Glu	Val	Ala	Glu	Ile	Cys	Thr	Leu	Cys	Lys	Ser	Asn
145				150					155						160
Gly	Trp	Ile	Leu	Pro	Thr	Val	Tyr	Gln	Gly	Met	Tyr	Asn	Ala	Ile	Thr
			165						170					175	
Arg	Gln	Val	Glu	Thr	Glu	Leu	Phe	Pro	Cys	Leu	Arg	His	Phe	Gly	Leu
		180						185					190		
Arg	Phe	Tyr	Ala	Phe	Asn	Pro	Leu	Ala	Gly	Gly	Leu	Leu	Thr	Gly	Lys
	195					200						205			
Tyr	Lys	Tyr	Glu	Asp	Lys	Asn	Gly	Lys	Gln	Pro	Val	Gly	Arg	Phe	Phe
	210					215					220				
Gly	Asn	Thr	Trp	Ala	Glu	Met	Tyr	Arg	Asn	Arg	Tyr	Trp	Lys	Glu	His
225					230					235					240

His Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr  
245 250 255

Gly Ala Ser Ala Pro Ser Met Thr Ser Ala Thr Leu Arg Trp Met Tyr  
260 265 270

His His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly  
275 280 285

Met Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Ala Glu Glu  
290 295 300

Gly Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His  
305 310 315 320

Leu Val Thr His Glu Cys Pro Asn Tyr Phe Arg  
325 330

<210> 327

<211> 331

<212> PRT

<213> Homo sapiens

<400> 327

Met Ser Arg Gln Leu Ser Arg Ala Arg Pro Ala Thr Val Leu Gly Ala  
1 5 10 15

Met Glu Met Gly Arg Arg Met Asp Ala Pro Thr Ser Ala Ala Val Thr  
20 25 30

Arg Ala Phe Leu Glu Arg Gly His Thr Glu Ile Asp Thr Ala Phe Val  
35 40 45

Tyr Ser Glu Gly Gln Ser Glu Thr Ile Leu Gly Gly Leu Gly Leu Arg  
50 55 60

Leu Gly Gly Ser Asp Cys Arg Val Lys Ile Asp Thr Lys Ala Ile Pro  
65 70 75 80

Leu Phe Gly Asn Ser Leu Lys Pro Asp Ser Leu Arg Phe Gln Leu Glu  
85 90 95

Thr Ser Leu Lys Arg Leu Gln Cys Pro Arg Val Asp Leu Phe Tyr Leu  
100 105 110

His Met Pro Asp His Ser Thr Pro Val Glu Glu Thr Leu Arg Ala Cys

115		120		125
His Gln Leu His Gln Glu Gly Lys Phe Val Glu Leu Gly Leu Ser Asn				
130		135		140
Tyr Ala Ala Trp Glu Val Ala Glu Ile Cys Thr Leu Cys Lys Ser Asn				
145		150		155
				160
Gly Trp Ile Leu Pro Thr Val Tyr Gln Gly Met Tyr Asn Ala Ile Thr				
		165		170
				175
Arg Gln Val Glu Thr Glu Leu Phe Pro Cys Leu Arg His Phe Gly Leu				
		180		185
				190
Arg Phe Tyr Ala Phe Asn Pro Leu Ala Gly Gly Leu Leu Thr Gly Lys				
		195		200
				205
Tyr Lys Tyr Glu Asp Lys Asn Gly Lys Gln Pro Val Gly Arg Phe Phe				
		210		215
				220
Gly Asn Thr Trp Ala Glu Met Tyr Arg Asn Arg Tyr Trp Lys Glu His				
		225		230
				235
				240
His Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr				
		245		250
				255
Gly Ala Ser Ala Pro Ser Met Thr Ser Ala Thr Leu Arg Trp Met Tyr				
		260		265
				270
His His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly				
		275		280
				285
Met Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Ala Glu Glu				
		290		295
				300
Gly Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His				
		305		310
				315
				320
Leu Val Thr His Glu Cys Pro Asn Tyr Phe Arg				
		325		330

<210> 328

<211> 330

<212> PRT

<213> Homo sapiens

<400> 328

Met	Ser	Arg	Pro	Pro	Pro	Pro	Arg	Val	Ala	Ser	Val	Leu	Gly	Thr	Met	1	5	10	15
Glu	Met	Gly	Arg	Arg	Met	Asp	Ala	Pro	Ala	Ser	Ala	Ala	Ala	Val	Arg	20	25	30	
Ala	Phe	Leu	Glu	Arg	Gly	His	Thr	Glu	Leu	Asp	Thr	Ala	Phe	Met	Tyr	35	40	45	
Ser	Asp	Gly	Gln	Ser	Glu	Thr	Ile	Leu	Gly	Gly	Leu	Gly	Leu	Gly	Leu	50	55	60	
Gly	Gly	Gly	Asp	Cys	Arg	Val	Lys	Ile	Ala	Thr	Lys	Ala	Asn	Pro	Trp	65	70	75	80
Asp	Gly	Lys	Ser	Leu	Lys	Pro	Asp	Ser	Val	Arg	Ser	Gln	Leu	Glu	Thr	85	90	95	
Ser	Leu	Lys	Arg	Leu	Gln	Cys	Pro	Gln	Val	Asp	Leu	Phe	Tyr	Leu	His	100	105	110	
Thr	Pro	Asp	His	Gly	Thr	Pro	Val	Glu	Glu	Thr	Leu	His	Ala	Cys	Gln	115	120	125	
Arg	Leu	His	Gln	Glu	Gly	Lys	Phe	Val	Glu	Leu	Gly	Leu	Ser	Asn	Tyr	130	135	140	
Ala	Ser	Trp	Glu	Val	Ala	Glu	Ile	Cys	Thr	Leu	Cys	Lys	Ser	Asn	Gly	145	150	155	160
Trp	Ile	Leu	Pro	Thr	Val	Tyr	Gln	Gly	Met	Tyr	Asn	Ala	Thr	Thr	Arg	165	170	175	
Gln	Val	Glu	Thr	Glu	Leu	Phe	Pro	Cys	Leu	Arg	His	Phe	Gly	Leu	Arg	180	185	190	
Phe	Tyr	Ala	Tyr	Asn	Pro	Leu	Ala	Gly	Gly	Leu	Leu	Thr	Gly	Lys	Tyr	195	200	205	
Lys	Tyr	Glu	Asp	Lys	Asp	Gly	Lys	Gln	Pro	Val	Gly	Arg	Phe	Phe	Gly	210	215	220	
Asn	Ser	Trp	Ala	Glu	Thr	Tyr	Arg	Asn	Arg	Phe	Trp	Lys	Glu	His	His	225	230	235	240
Phe	Glu	Ala	Ile	Ala	Leu	Val	Glu	Lys	Ala	Leu	Gln	Ala	Ala	Tyr	Gly	245	250	255	

Ala Ser Ala Pro Ser Val Thr Ser Ala Ala Leu Arg Trp Met Tyr His  
 260 265 270

His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met  
 275 280 285

Ser Ser Leu Glu Gln Leu Glu Gln Asn Leu Ala Ala Thr Glu Glu Gly  
 290 295 300

Pro Leu Glu Pro Ala Val Val Asp Ala Phe Asn Gln Ala Trp His Leu  
 305 310 315 320

Val Ala His Glu Cys Pro Asn Tyr Phe Arg  
 325 330

<210> 329

<211> 306

<212> PRT

<213> Homo sapiens

<400> 329

Pro Ala Thr Val Leu Gly Ala Met Glu Met Gly Arg Arg Met Asp Ala  
 1 5 10 15

Pro Thr Ser Ala Ala Val Thr Arg Ala Phe Leu Glu Arg Gly His Thr  
 20 25 30

Glu Ile Asp Thr Ala Phe Leu Tyr Ser Asp Gly Gln Ser Glu Thr Ile  
 35 40 45

Leu Gly Gly Leu Gly Leu Arg Met Gly Ser Ser Asp Cys Arg Val Lys  
 50 55 60

Ile Ala Thr Lys Ala Asn Pro Trp Ile Gly Asn Ser Leu Lys Pro Asp  
 65 70 75 80

Ser Val Arg Ser Gln Leu Glu Thr Ser Leu Lys Arg Leu Gln Cys Pro  
 85 90 95

Arg Val Asp Leu Phe Tyr Leu His Ala Pro Asp His Ser Ala Pro Val  
 100 105 110

Glu Glu Thr Leu Arg Ala Cys His Gln Leu His Gln Glu Gly Lys Phe  
 115 120 125

Val Glu Leu Gly Leu Ser Asn Tyr Ala Ala Trp Glu Val Ala Glu Ile  
 130 135 140



Cys Thr Leu Cys Lys Ser Asn Gly Trp Ile Leu Pro Thr Val Tyr Gln  
 145 150 155 160  
 Gly Met Tyr Ser Ala Thr Thr Arg Gln Val Glu Thr Glu Leu Phe Pro  
 165 170 175  
 Cys Leu Arg His Phe Gly Leu Arg Phe Tyr Ala Tyr Asn Pro Leu Ala  
 180 185 190  
 Asp Gln Ser Pro Glu Gly Cys Gly Ser Phe Trp Gly Thr Leu Gly Pro  
 195 200 205  
 Gly Ala Asp Cys Cys Leu Pro Ala Gly Gly Leu Leu Thr Gly Lys Tyr  
 210 215 220  
 Lys Tyr Glu Asp Lys Asp Gly Lys Gln Pro Val Gly Arg Phe Phe Gly  
 225 230 235 240  
 Thr Gln Trp Ala Glu Ile Tyr Arg Asn Gln Phe Trp Lys Glu His His  
 245 250 255  
 Phe Glu Gly Ile Ala Leu Val Glu Lys Ala Leu Gln Ala Ala Tyr Gly  
 260 265 270  
 Ala Ser Ala Pro Ser Met Thr Ser Ala Ala Leu Arg Trp Met Tyr His  
 275 280 285  
 His Ser Gln Leu Gln Gly Ala His Gly Asp Ala Val Ile Leu Gly Met  
 290 295 300  
 Ser Ser  
 305

<210> 330

<211> 245

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Aldo/keto  
 reductase family domain sequence

<400> 330

Pro Leu Leu Gly Leu Gly Thr Trp Lys Thr Pro Gly Arg Val Asp Asp  
 1 5 10 15

Glu Glu Ala Phe Glu Ala Val Lys Ala Ala Leu Asp Ala Gly Tyr Arg  
                   20                  25                  30  
 His Phe Asp Thr Ala Glu Ile Tyr Gly Asn Glu Glu Glu Val Gly Glu  
                   35                  40                  45  
 Ala Ile Lys Glu Ala Leu Phe Glu Gly Ser Gly Val Val Arg Glu Asp  
                   50                  55                  60  
 Ile Phe Ile Thr Ser Lys Leu Trp Asn Thr Phe His Ser Pro Lys His  
                   65                  70                  75                  80  
 Val Arg Glu Ala Leu Glu Lys Ser Leu Lys Arg Leu Gly Leu Asp Tyr  
                                   85                  90                  95  
 Val Asp Leu Tyr Leu Ile His Trp Pro Asp Pro Leu Lys Pro Gly Asp  
                   100                  105                  110  
 Asp Val Pro Ile Glu Glu Thr Trp Lys Ala Leu Glu Lys Leu Val Asp  
                   115                  120                  125  
 Glu Gly Lys Val Arg Ser Ile Gly Val Ser Asn Phe Ser Ala Glu Gln  
                   130                  135                  140  
 Leu Glu Glu Ala Leu Ser Glu Ala Gly Lys Ile Pro Pro Val Val Asn  
                   145                  150                  155                  160  
 Gln Val Glu Tyr His Pro Tyr Leu Arg Gln Asp Glu Leu Arg Lys Phe  
                                   165                  170                  175  
 Cys Lys Lys His Gly Ile Gly Val Thr Ala Tyr Ser Pro Leu Gly Ser  
                   180                  185                  190  
 Gly Leu Leu Asp Lys Phe Trp Ser Glu Leu Gly Ser Pro Glu Leu Leu  
                   195                  200                  205  
 Glu Asp Pro Ala Leu Lys Lys Ile Ala Glu Lys Tyr Gly Lys Thr Pro  
                   210                  215                  220  
 Ala Gln Val Ala Leu Arg Trp Val Leu Gln Arg Gly Val Ser Val Ile  
                   225                  230                  235                  240  
 Pro Lys Ser Ser Thr  
                   245

<210> 331

<211> 768

<212> PRT

<213> Mus musculus

<400> 331

Met	Lys	Leu	Leu	Trp	Gln	Ala	Lys	Met	Ser	Ser	Ile	Gln	Asp	Trp	Gly	
1				5				10						15		
Glu	Glu	Val	Glu	Glu	Gly	Ala	Val	Tyr	His	Val	Thr	Leu	Lys	Arg	Val	
			20					25						30		
Gln	Ile	Gln	Gln	Ala	Ala	Asn	Lys	Gly	Ala	Arg	Trp	Leu	Gly	Val	Glu	
		35					40						45			
Gly	Asp	Gln	Leu	Pro	Pro	Gly	His	Thr	Val	Ser	Gln	Tyr	Glu	Thr	Cys	
	50					55					60					
Lys	Ile	Arg	Thr	Ile	Lys	Ala	Gly	Thr	Leu	Glu	Lys	Leu	Val	Glu	Asn	
65					70					75					80	
Leu	Leu	Thr	Ala	Phe	Gly	Asp	Asn	Asp	Phe	Thr	Tyr	Ile	Ser	Ile	Phe	
				85					90					95		
Leu	Ser	Thr	Tyr	Arg	Gly	Phe	Ala	Ser	Thr	Lys	Glu	Val	Leu	Glu	Leu	
			100					105					110			
Leu	Leu	Asp	Arg	Tyr	Gly	Asn	Leu	Thr	Ser	Pro	Asn	Cys	Glu	Glu	Asp	
		115					120					125				
Gly	Ser	Gln	Ser	Ser	Ser	Glu	Ser	Lys	Met	Val	Ile	Arg	Asn	Ala	Ile	
	130					135					140					
Ala	Ser	Ile	Leu	Arg	Ala	Trp	Leu	Asp	Gln	Cys	Ala	Glu	Asp	Phe	Arg	
145					150					155					160	
Glu	Pro	Pro	His	Phe	Pro	Cys	Leu	Gln	Lys	Leu	Leu	Asp	Tyr	Leu	Thr	
			165						170					175		
Arg	Met	Met	Pro	Gly	Ser	Asp	Pro	Glu	Arg	Arg	Ala	Gln	Asn	Leu	Leu	
			180					185					190			
Glu	Gln	Phe	Gln	Lys	Gln	Glu	Val	Glu	Thr	Asp	Asn	Gly	Leu	Pro	Asn	
		195					200					205				
Thr	Ile	Ser	Phe	Ser	Leu	Glu	Glu	Glu	Glu	Glu	Leu	Glu	Gly	Gly	Glu	
	210					215					220					
Ser	Ala	Glu	Phe	Thr	Cys	Phe	Ser	Glu	Asp	Leu	Val	Ala	Glu	Gln	Leu	
225					230					235					240	

Thr	Tyr	Met	Asp	Ala	Gln	Leu	Phe	Lys	Lys	Val	Val	Pro	His	His	Cys	
				245					250						255	
Leu	Gly	Cys	Ile	Trp	Ser	Arg	Arg	Asp	Lys	Lys	Glu	Asn	Lys	His	Leu	
			260					265					270			
Ala	Pro	Thr	Ile	Arg	Ala	Thr	Ile	Ser	Gln	Phe	Asn	Thr	Leu	Thr	Lys	
		275					280					285				
Cys	Val	Val	Ser	Thr	Ile	Leu	Gly	Gly	Lys	Glu	Leu	Lys	Thr	Gln	Gln	
	290					295					300					
Arg	Ala	Lys	Ile	Ile	Glu	Lys	Trp	Ile	Asn	Ile	Ala	His	Glu	Cys	Arg	
305					310				315						320	
Leu	Leu	Lys	Asn	Phe	Ser	Ser	Leu	Arg	Ala	Ile	Val	Ser	Ala	Leu	Gln	
			325					330						335		
Ser	Asn	Ser	Ile	Tyr	Arg	Leu	Lys	Lys	Thr	Trp	Ala	Ala	Val	Pro	Arg	
			340					345					350			
Asp	Arg	Met	Leu	Met	Phe	Glu	Glu	Leu	Ser	Asp	Ile	Phe	Ser	Asp	His	
		355					360					365				
Asn	Asn	His	Leu	Thr	Ser	Arg	Glu	Leu	Leu	Met	Lys	Glu	Gly	Thr	Ser	
	370					375					380					
Lys	Phe	Ala	Asn	Leu	Asp	Ser	Ser	Val	Lys	Glu	Asn	Gln	Lys	Arg	Thr	
385					390					395					400	
Gln	Arg	Arg	Leu	Gln	Leu	Gln	Lys	Asp	Met	Gly	Val	Met	Gln	Gly	Thr	
			405					410					415			
Val	Pro	Tyr	Leu	Gly	Thr	Phe	Leu	Thr	Asp	Leu	Thr	Met	Leu	Asp	Thr	
			420					425					430			
Ala	Leu	Gln	Asp	Tyr	Ile	Glu	Gly	Gly	Leu	Ile	Asn	Phe	Glu	Lys	Arg	
		435					440					445				
Arg	Arg	Glu	Phe	Glu	Val	Ile	Ala	Gln	Ile	Lys	Leu	Leu	Gln	Ser	Ala	
	450					455					460					
Cys	Asn	Ser	Tyr	Cys	Met	Thr	Pro	Asp	Gln	Lys	Phe	Ile	Gln	Trp	Phe	
465					470					475					480	
Gln	Arg	Gln	Gln	Leu	Leu	Thr	Glu	Glu	Glu	Ser	Tyr	Ala	Leu	Ser	Cys	
			485					490					495			

Glu	Ile	Glu	Ala	Ala	Ala	Asp	Ala	Ser	Thr	Thr	Ser	Pro	Lys	Pro	Arg			
			500					505					510					
Lys	Ser	Met	Val	Lys	Arg	Leu	Ser	Leu	Leu	Phe	Leu	Gly	Ser	Asp	Met			
		515					520					525						
Ile	Thr	Ser	Pro	Thr	Pro	Thr	Lys	Glu	Gln	Pro	Lys	Ser	Thr	Ala	Ser			
	530					535					540							
Gly	Ser	Ser	Gly	Glu	Ser	Met	Asp	Ser	Val	Ser	Val	Ser	Ser	Cys	Glu			
545					550					555					560			
Ser	Asn	His	Ser	Glu	Ala	Glu	Glu	Gly	Ser	Ile	Thr	Pro	Met	Asp	Thr			
			565					570						575				
Pro	Asp	Glu	Pro	Gln	Lys	Lys	Leu	Ser	Glu	Ser	Ser	Ser	Ser	Cys	Ser			
			580					585						590				
Ser	Ile	His	Ser	Met	Asp	Thr	Asn	Ser	Ser	Gly	Met	Ser	Ser	Leu	Ile			
		595					600					605						
Asn	Pro	Leu	Ser	Ser	Pro	Pro	Ser	Cys	Asn	Asn	Asn	Pro	Lys	Ile	His			
	610					615					620							
Lys	Arg	Ser	Val	Ser	Val	Thr	Ser	Ile	Thr	Ser	Thr	Val	Leu	Pro	Pro			
625					630					635					640			
Val	Tyr	Asn	Gln	Gln	Asn	Glu	Asp	Thr	Cys	Ile	Ile	Arg	Ile	Ser	Val			
				645					650				655					
Glu	Asp	Asn	Asn	Gly	Asn	Met	Tyr	Lys	Ser	Ile	Met	Leu	Thr	Ser	Gln			
			660					665				670						
Asp	Lys	Thr	Pro	Ala	Val	Ile	Gln	Arg	Ala	Met	Leu	Lys	His	Asn	Leu			
		675					680					685						
Asp	Ser	Asp	Pro	Ala	Glu	Glu	Tyr	Glu	Leu	Val	Gln	Val	Ile	Ser	Glu			
	690					695					700							
Asp	Lys	Glu	Leu	Val	Ile	Pro	Asp	Ser	Ala	Asn	Val	Phe	Tyr	Ala	Met			
705					710					715					720			
Asn	Ser	Gln	Val	Asn	Phe	Asp	Phe	Ile	Leu	Arg	Lys	Lys	Asn	Ser	Met			
			725						730					735				
Glu	Glu	Gln	Val	Lys	Leu	Arg	Ser	Arg	Thr	Ser	Leu	Thr	Leu	Pro	Arg			
			740					745					750					

Thr Ala Lys Arg Gly Cys Trp Ser Xaa Arg His Ser Lys Ile Thr Leu  
755 760 765

<210> 332

<211> 709

<212> PRT

<213> Mus musculus

<400> 332

Met Glu Arg Thr Ala Gly Lys Glu Leu Ala Leu Ala Pro Leu Gln Asp  
1 5 10 15

Trp Gly Glu Glu Thr Glu Asp Gly Ala Val Tyr Ser Val Ser Leu Arg  
20 25 30

Arg Gln Arg Ser Gln Arg Ser Thr Pro Glu Arg Ser Gly Glu Gly Gln  
35 40 45

Thr Pro Ile Pro Ala Thr Asp Thr Phe Leu His Tyr Arg Thr Ser Lys  
50 55 60

Val Arg Ala Leu Arg Ala Ala Arg Leu Glu Arg Leu Val His Glu Leu  
65 70 75 80

Val Ser Gly Asp Arg Glu Gln Asp Pro Gly Phe Val Pro Ala Phe Leu  
85 90 95

Ala Thr His Arg Ala Phe Val Pro Thr Ala Arg Val Leu Gly Phe Leu  
100 105 110

Leu Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Ala Gly Val Asp Ser  
115 120 125

Lys Arg Thr Glu Gly Gln Asp Leu Asn Phe Ser Lys Asn Leu Arg Ala  
130 135 140

Val Val Ser Val Leu Gly Ser Trp Leu Arg Asn His Pro Gln Asp Phe  
145 150 155 160

Arg Asp Pro Pro Asp His Gln Asn Leu Gly Asn Val Arg Ile Phe Leu  
165 170 175

Gly Trp Val Ala Pro Gly Gly Ala Glu Ala Arg Glu Ala Glu Lys Leu

180	185	190
Leu Glu Asp Phe Leu Lys Glu Ala Lys Gly Glu Gln Thr Glu Glu Glu		
195	200	205
Lys Arg Leu Ala Trp Ser Gly Pro Pro Arg Ile Ala Gln Thr Pro Gly		
210	215	220
Ser Glu Phe Ala Glu Asp Cys Val Glu Glu Glu Gly Pro Ser Ser Glu		
225	230	235
Gly Pro Glu Leu Leu Asp Phe Ser Val Asp Asp Val Ala Glu Gln Leu		
245	250	255
Thr Leu Met Asp Val Glu Leu Phe Leu Arg Val Arg Ser Cys Glu Cys		
260	265	270
Leu Gly Ser Met Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ile		
275	280	285
Ser Pro Thr Val Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly		
290	295	300
Cys Val Leu Gly Ser Val Leu Ala Ala Pro Gly Leu Ala Ala Ser Gln		
305	310	315
Arg Ala Gln Arg Ile Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg		
325	330	335
Glu Leu Arg Asn Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln		
340	345	350
Ser Asn Pro Ile Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg		
355	360	365
Glu Pro Leu Ser Val Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu		
370	375	380
Asp Asn His Leu Ser Ser Arg Ala Ile Leu Ser Gln Glu Glu Thr Thr		
385	390	395
Glu Asp Asp Asp Cys Pro Ser Gly Ser Leu Pro Ser Lys Leu Pro Pro		
405	410	415
Gly Pro Val Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu		
420	425	430
Asp Thr Ala Leu Pro Asp Thr Leu Lys Gly Asn Leu Ile Asn Phe Glu		

435		440		445
Lys Arg Arg Lys Glu Trp Glu Ile Leu Ala Arg Ile Gln Gln Leu Gln				
450		455		460
Gln Arg Cys Gln Arg Tyr Ser Leu Ser Pro Arg Pro Pro Ile Leu Ala				
465		470		475
				480
Ala Leu Arg Ala Gln Arg Gln Leu Ser Glu Glu Gln Ser Tyr Arg Val				
	485		490	495
Ser Arg Val Ile Glu Pro Pro Ala Ala Ser Cys Pro Ser Ser Pro Arg				
	500		505	510
Ile Arg Arg Arg Ile Ser Leu Thr Lys Arg Leu Ser Ala Lys Leu Ser				
	515		520	525
Arg Glu Lys Asn Ser Ser Pro Gly Gly Ser Pro Gly Asp Pro Ser Ser				
	530		535	540
Pro Thr Ser Ser Val Ser Pro Gly Ser Pro Pro Ser Ser Pro Arg Asn				
	545		550	555
				560
Arg Glu Pro Pro Pro Pro Gly Ser Pro Pro Ala Ser Pro Gly Pro Gln				
	565		570	575
Ser Pro Ser Thr Lys Leu Ser Leu Thr Met Asp Pro Pro Gly Pro Trp				
	580		585	590
Pro Val Thr Leu Thr Pro Ser Ser Ser Arg Val Pro Leu Leu Gly Gln				
	595		600	605
Gln Thr Ser Glu Ala Arg Val Ile Arg Val Ser Ile Asn Asn Asn His				
	610		615	620
Gly Asn Leu Tyr Arg Ser Ile Leu Leu Thr Cys Gln Asp Lys Ala Pro				
	625		630	635
				640
Ser Val Val Gln Arg Ala Leu Glu Lys His Asn Val Pro Gln Pro Trp				
	645		650	655
Ala Arg Asp Tyr Gln Leu Phe Gln Val Leu Pro Gly Asp Arg Glu Leu				
	660		665	670
Leu Ile Pro Asp Gly Ala Asn Val Phe Tyr Ala Met Ser Pro Ala Ala				
	675		680	685
Pro Gly Asp Phe Leu Leu Arg Arg Lys Glu Gly Thr Gly His Thr Leu				



690                                      695                                      700  
 Ser Ala Ser Pro Thr  
 705  
  
 <210> 333  
 <211> 343  
 <212> PRT  
 <213> Mus musculus  
  
 <400> 333  
 Met Ala Pro Cys Thr Ala Ser Pro Cys Gly Gly Ser Ala Ala Ser Ala  
   1                                  5                                  10                                  15  
 Arg Pro Gln Arg Gly Leu Glu Lys Ala Arg Val Asp Ser Lys Arg Thr  
                                   20                                  25                                  30  
 Glu Gly Gln Asp Leu Asn Phe Ser Lys Asn Leu Arg Ala Val Val Ser  
                                   35                                  40                                  45  
 Val Leu Gly Ser Trp Leu Arg Asn His Pro Gln Asp Phe Arg Asp Pro  
                                   50                                  55                                  60  
 Pro Asp His Gln Asn Leu Gly Asn Val Arg Ile Phe Leu Gly Trp Ala  
   65                                  70                                  75                                  80  
 Ala Pro Gly Gly Ala Glu Ala Arg Glu Ala Glu Lys Leu Leu Glu Asp  
                                   85                                  90                                  95  
 Phe Leu Lys Glu Ala Lys Gly Glu Gln Thr Glu Glu Glu Lys Arg Leu  
                                   100                                  105                                  110  
 Ala Trp Ser Gly Pro Pro Arg Ile Ala Gln Thr Pro Gly Ser Glu Phe  
                                   115                                  120                                  125  
 Ala Glu Asp Cys Val Glu Glu Glu Gly Pro Ser Ser Glu Gly Pro Glu  
                                   130                                  135                                  140  
 Leu Leu Asp Phe Ser Val Asp Asp Val Ala Glu Gln Leu Thr Leu Met  
   145                                  150                                  155                                  160  
 Asp Val Glu Leu Phe Leu Arg Val Arg Ser Cys Glu Cys Leu Gly Ser  
                                   165                                  170                                  175  
 Met Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ile Ser Pro Thr  
                                   180                                  185                                  190

Val Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly Cys Val Leu  
 195 200 205  
 Gly Ser Val Leu Ala Ala Pro Gly Leu Ala Ala Ser Gln Lys Ala Gln  
 210 215 220  
 Arg Ile Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg Glu Leu Arg  
 225 230 235 240  
 Asn Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln Ser Asn Pro  
 245 250 255  
 Ile Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg Glu Pro Leu  
 260 265 270  
 Ser Val Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu Asp Asn His  
 275 280 285  
 Leu Ser Ser Arg Ala Ile Leu Ser Gln Glu Glu Thr Thr Glu Asp Asp  
 290 295 300  
 Asp Cys Pro Ser Gly Ser Leu Pro Ser Lys Leu Pro Pro Gly Pro Val  
 305 310 315 320  
 Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu Asp Thr Ala  
 325 330 335  
 Leu Pro Asp Thr Leu Lys Val  
 340

<210> 334

<211> 343

<212> PRT

<213> Homo sapiens

<400> 334

Met Ala Pro Cys Thr Ala Ser Pro Cys Gly Gly Ser Ala Ala Ser Ala  
 1 5 10 15  
 Arg Pro Gln Arg Gly Leu Glu Lys Ala Arg Val Asp Ser Lys Arg Thr  
 20 25 30  
 Glu Gly Gln Asp Leu Asn Phe Ser Lys Asn Leu Arg Ala Val Val Ser  
 35 40 45  
 Val Leu Gly Ser Trp Leu Arg Asn His Pro Gln Asp Phe Arg Asp Pro  
 50 55 60

Pro	Asp	His	Gln	Asn	Leu	Gly	Asn	Val	Arg	Ile	Phe	Leu	Gly	Trp	Ala	
65					70					75					80	
Ala	Pro	Gly	Gly	Ala	Glu	Ala	Arg	Glu	Ala	Glu	Lys	Leu	Leu	Glu	Asp	
				85					90					95		
Phe	Leu	Lys	Glu	Ala	Lys	Gly	Glu	Gln	Thr	Glu	Glu	Glu	Lys	Arg	Leu	
			100					105						110		
Ala	Trp	Ser	Gly	Pro	Pro	Arg	Ile	Ala	Gln	Thr	Pro	Gly	Ser	Glu	Phe	
		115					120						125			
Ala	Glu	Asp	Cys	Val	Glu	Glu	Glu	Gly	Pro	Ser	Ser	Glu	Gly	Pro	Glu	
	130						135					140				
Leu	Leu	Asp	Phe	Ser	Val	Asp	Asp	Val	Ala	Glu	Gln	Leu	Thr	Leu	Met	
145					150					155					160	
Asp	Val	Glu	Leu	Phe	Leu	Arg	Val	Arg	Ser	Cys	Glu	Cys	Leu	Gly	Ser	
				165					170					175		
Met	Trp	Ser	Gln	Arg	Asp	Arg	Pro	Gly	Ala	Ala	Gly	Ile	Ser	Pro	Thr	
			180					185					190			
Val	Arg	Ala	Thr	Val	Ala	Gln	Phe	Asn	Thr	Val	Thr	Gly	Cys	Val	Leu	
	195						200					205				
Gly	Ser	Val	Leu	Ala	Ala	Pro	Gly	Leu	Ala	Ala	Ser	Gln	Lys	Ala	Gln	
	210					215					220					
Arg	Ile	Glu	Lys	Trp	Ile	Arg	Ile	Ala	Gln	Arg	Cys	Arg	Glu	Leu	Arg	
225					230				235					240		
Asn	Phe	Ser	Ser	Leu	Arg	Ala	Ile	Leu	Ser	Ala	Leu	Gln	Ser	Asn	Pro	
				245					250					255		
Ile	Tyr	Arg	Leu	Lys	Arg	Ser	Trp	Gly	Ala	Val	Ser	Arg	Glu	Pro	Leu	
			260					265					270			
Ser	Val	Phe	Arg	Lys	Leu	Ser	Gln	Ile	Phe	Ser	Asp	Glu	Asp	Asn	His	
		275					280					285				
Leu	Ser	Ser	Arg	Ala	Ile	Leu	Ser	Gln	Glu	Glu	Thr	Thr	Glu	Asp	Asp	
	290					295					300					
Asp	Cys	Pro	Ser	Gly	Ser	Leu	Pro	Ser	Lys	Leu	Pro	Pro	Gly	Pro	Val	
305					310					315					320	

Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu Asp Thr Ala  
 325 330 335

Leu Pro Asp Thr Leu Lys Val  
 340

<210> 335

<211> 709

<212> PRT

<213> Mus musculus

<400> 335

Met Glu Arg Thr Ala Gly Lys Glu Leu Ala Leu Ala Pro Leu Gln Asp  
 1 5 10 15

Trp Gly Glu Glu Thr Glu Asp Gly Ala Val Tyr Ser Val Ser Leu Arg  
 20 25 30

Arg Gln Arg Ser Gln Arg Ser Thr Pro Glu Arg Ser Gly Glu Gly Gln  
 35 40 45

Thr Pro Ile Pro Ala Thr Asp Thr Phe Leu His Tyr Arg Thr Ser Lys  
 50 55 60

Val Arg Ala Leu Arg Ala Ala Arg Leu Glu Arg Leu Val His Glu Leu  
 65 70 75 80

Val Ser Gly Asp Arg Glu Gln Asp Pro Gly Phe Val Pro Ala Phe Leu  
 85 90 95

Ala Thr His Arg Ala Phe Val Pro Thr Ala Arg Val Leu Gly Phe Leu  
 100 105 110

Leu Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Ala Gly Val Asp Ser  
 115 120 125

Lys Arg Thr Glu Gly Gln Asp Leu Asn Phe Ser Lys Asn Leu Arg Ala  
 130 135 140

Val Val Ser Val Leu Gly Ser Trp Leu Arg Asn His Pro Gln Asp Phe  
 145 150 155 160

Arg Asp Pro Pro Asp His Gln Asn Leu Gly Asn Val Arg Ile Phe Leu  
 165 170 175

Gly Trp Ala Ala Pro Gly Gly Ala Glu Ala Arg Glu Ala Glu Lys Leu

180	185	190
Leu Glu Asp Phe Leu Lys Glu Ala Lys Gly Glu Gln Thr Glu Glu Glu		
195	200	205
Lys Arg Leu Ala Trp Ser Gly Pro Pro Arg Ile Ala Gln Thr Pro Gly		
210	215	220
Ser Glu Phe Ala Glu Asp Cys Val Glu Glu Glu Gly Pro Ser Ser Glu		
225	230	235
Gly Pro Glu Leu Leu Asp Phe Ser Val Asp Asp Val Ala Glu Gln Leu		
245	250	255
Thr Leu Met Asp Val Glu Leu Phe Leu Arg Val Arg Ser Cys Glu Cys		
260	265	270
Leu Gly Ser Met Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ile		
275	280	285
Ser Pro Thr Val Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly		
290	295	300
Cys Val Leu Gly Ser Val Leu Ala Ala Pro Gly Leu Ala Ala Ser Gln		
305	310	315
Arg Ala Gln Arg Ile Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg		
325	330	335
Glu Leu Arg Asn Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln		
340	345	350
Ser Asn Pro Ile Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg		
355	360	365
Glu Pro Leu Ser Val Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu		
370	375	380
Asp Asn His Leu Ser Ser Arg Ala Ile Leu Ser Gln Glu Glu Thr Thr		
385	390	395
Glu Asp Asp Asp Cys Pro Ser Gly Ser Leu Pro Ser Lys Leu Pro Pro		
405	410	415
Gly Pro Val Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu		
420	425	430
Asp Thr Ala Leu Pro Asp Thr Leu Lys Gly Asn Leu Ile Asn Phe Glu		

435		440		445
Lys Arg Arg Lys Glu Trp Glu Ile Leu Ala Arg Ile Gln Gln Leu Gln				
450		455		460
Gln Arg Cys Gln Arg Tyr Ser Leu Ser Pro Arg Pro Pro Ile Leu Ala				
465		470		475
				480
Ala Leu Arg Ala Gln Arg Gln Leu Ser Glu Glu Gln Ser Tyr Arg Val				
	485		490	495
Ser Arg Val Ile Glu Pro Pro Ala Ala Ser Cys Pro Ser Ser Pro Arg				
	500		505	510
Ile Arg Arg Arg Ile Ser Leu Thr Lys Arg Leu Ser Ala Lys Leu Ser				
	515		520	525
Arg Glu Lys Asn Ser Ser Pro Gly Gly Ser Pro Gly Asp Pro Ser Ser				
	530		535	540
Pro Thr Ser Ser Val Ser Pro Gly Ser Pro Pro Ser Ser Pro Arg Asn				
	545		550	555
				560
Arg Glu Pro Pro Pro Pro Gly Ser Pro Pro Ala Ser Pro Gly Pro Gln				
	565		570	575
Ser Pro Ser Thr Lys Leu Ser Leu Thr Met Asp Pro Pro Gly Pro Trp				
	580		585	590
Pro Val Thr Leu Thr Pro Ser Ser Ser Arg Val Pro Leu Leu Gly Gln				
	595		600	605
Gln Thr Ser Glu Ala Arg Val Ile Arg Val Ser Ile Asn Asn Asn His				
	610		615	620
Gly Asn Leu Tyr Arg Ser Ile Leu Leu Thr Cys Gln Asp Lys Ala Pro				
	625		630	635
				640
Ser Val Val Gln Arg Ala Leu Glu Lys His Asn Val Pro Gln Pro Trp				
	645		650	655
Ala Arg Asp Tyr Gln Leu Phe Gln Val Leu Pro Gly Asp Arg Glu Leu				
	660		665	670
Leu Ile Pro Asp Gly Ala Asn Val Phe Tyr Ala Met Ser Pro Ala Ala				
	675		680	685
Pro Gly Asp Phe Leu Leu Arg Arg Lys Glu Gly Thr Gly His Thr Leu				

690                                      695                                      700  
 Ser Ala Ser Pro Thr  
 705  
  
 <210> 336  
 <211> 261  
 <212> PRT  
 <213> Homo sapiens  
  
 <400> 336  
 Leu Leu Asp Phe Ser Val Asp Glu Val Ala Glu Gln Leu Thr Leu Ile  
   1                                  5                                  10                                  15  
 Asp Leu Glu Leu Phe Ser Lys Val Arg Leu Tyr Glu Cys Leu Gly Ser  
                                   20                                  25                                  30  
 Val Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ala Ser Pro Thr  
                                   35                                  40                                  45  
 Val Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly Cys Val Leu  
                                   50                                  55                                  60  
 Gly Ser Val Leu Gly Ala Pro Gly Leu Ala Ala Pro Gln Arg Ala Gln  
   65                                  70                                  75                                  80  
 Arg Leu Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg Glu Leu Arg  
                                   85                                  90                                  95  
 Asn Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln Ser Asn Pro  
                                   100                                  105                                  110  
 Ile Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg Glu Pro Leu  
                                   115                                  120                                  125  
 Ser Thr Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu Asn Asn His  
                                   130                                  135                                  140  
 Leu Ser Ser Arg Glu Ile Leu Phe Gln Glu Glu Ala Thr Glu Gly Ser  
   145                                  150                                  155                                  160  
 Gln Glu Glu Asp Asn Thr Pro Gly Ser Leu Pro Ser Lys Pro Pro Pro  
                                   165                                  170                                  175  
 Gly Pro Val Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu  
                                   180                                  185                                  190

Asp Thr Ala Leu Pro Asp Met Leu Glu Gly Asp Leu Ile Asn Phe Glu  
 195 200 205

Lys Arg Arg Lys Glu Trp Glu Ile Leu Ala Arg Ile Gln Gln Leu Gln  
 210 215 220

Arg Arg Cys Gln Ser Tyr Thr Leu Ser Pro His Pro Pro Ile Leu Ala  
 225 230 235 240

Ala Leu His Ala Gln Asn Gln Leu Thr Glu Glu Gln Ser Tyr Arg Leu  
 245 250 255

Ser Arg Val Ile Glu  
 260

<210> 337

<211> 239

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: RasGEF domain  
 sequence

<400> 337

Leu Leu Leu Leu Asp Pro Lys Glu Leu Ala Glu Gln Leu Thr Leu Leu  
 1 5 10 15

Asp Phe Glu Leu Phe Arg Lys Ile Asp Pro Ser Glu Leu Leu Gly Ser  
 20 25 30

Val Trp Gly Lys Arg Ser Lys Lys Ser Pro Ser Pro Leu Asn Leu Glu  
 35 40 45

Arg Phe Ile Glu Arg Phe Asn Glu Val Ser Asn Trp Val Ala Thr Glu  
 50 55 60

Ile Leu Lys Gln Thr Thr Pro Lys Asp Arg Ala Glu Leu Leu Ser Lys  
 65 70 75 80

Phe Ile Gln Val Ala Lys His Cys Arg Glu Leu Asn Asn Phe Asn Ser  
 85 90 95

Leu Met Ala Ile Val Ser Ala Leu Ser Ser Ser Pro Ile Ser Arg Leu  
 100 105 110

Lys Lys Thr Trp Glu Lys Leu Pro Ser Lys Tyr Lys Lys Leu Phe Glu



115		120		125
Glu Leu Glu Glu Leu Leu Asp Pro Ser Arg Asn Phe Lys Asn Tyr Arg				
130		135		140
Glu Ala Leu Ser Ser Cys Asn Leu Pro Pro Cys Ile Pro Phe Leu Gly				
145		150		155
Val Leu Leu Lys Asp Leu Thr Phe Ile Asp Glu Gly Asn Pro Asp Phe				
	165		170	175
Leu Lys Asn Gly Leu Val Asn Phe Glu Lys Arg Arg Lys Ile Ala Lys				
	180		185	190
Ile Leu Arg Glu Ile Arg Gln Leu Gln Ser Gln Pro Tyr Asn Leu Arg				
	195		200	205
Pro Asn Arg Ser Asp Ile Gln Ser Leu Leu Gln Gln Ser Leu Asp Ser				
	210		215	220
Leu Pro Glu Glu Asn Glu Leu Tyr Glu Leu Ser Leu Arg Ile Glu				
225		230		235

<210> 338

<211> 211

<212> PRT

<213> Homo sapiens

<400> 338

Leu Asp Phe Ser Val Asp Glu Val Ala Glu Gln Leu Thr Leu Ile Asp				
1		5		10
				15
Leu Glu Leu Phe Ser Lys Val Arg Leu Tyr Glu Cys Leu Gly Ser Val				
	20		25	30
Trp Ser Gln Arg Asp Arg Pro Gly Ala Ala Gly Ala Ser Pro Thr Val				
	35		40	45
Arg Ala Thr Val Ala Gln Phe Asn Thr Val Thr Gly Cys Val Leu Gly				
	50		55	60
Ser Val Leu Gly Ala Pro Gly Leu Ala Ala Pro Gln Arg Ala Gln Arg				
65		70		75
				80
Leu Glu Lys Trp Ile Arg Ile Ala Gln Arg Cys Arg Glu Leu Arg Asn				
	85		90	95

Phe Ser Ser Leu Arg Ala Ile Leu Ser Ala Leu Gln Ser Asn Pro Ile  
 100 105 110  
 Tyr Arg Leu Lys Arg Ser Trp Gly Ala Val Ser Arg Glu Pro Leu Ser  
 115 120 125  
 Thr Phe Arg Lys Leu Ser Gln Ile Phe Ser Asp Glu Asn Asn His Leu  
 130 135 140  
 Ser Ser Arg Glu Ile Leu Phe Gln Glu Glu Ala Thr Glu Gly Ser Gln  
 145 150 155 160  
 Glu Glu Asp Asn Thr Pro Gly Ser Leu Pro Ser Lys Pro Pro Pro Gly  
 165 170 175  
 Pro Val Pro Tyr Leu Gly Thr Phe Leu Thr Asp Leu Val Met Leu Asp  
 180 185 190  
 Thr Ala Leu Pro Asp Met Leu Glu Gly Asp Leu Ile Asn Phe Glu Lys  
 195 200 205  
 Arg Arg Lys  
 210

<210> 339

<211> 188

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: RasGEF domain  
sequence

<400> 339

Leu Leu Leu Asp Pro Leu Glu Leu Ala Lys Gln Leu Thr Leu Leu Glu  
 1 5 10 15  
 His Glu Leu Phe Lys Lys Ile Asp Pro Phe Glu Cys Leu Gly Gln Val  
 20 25 30  
 Trp Gly Lys Lys Tyr Gly Lys Asn Glu Arg Ser Pro Asn Ile Asp Lys  
 35 40 45  
 Thr Ile Lys Asn Phe Asn Gln Leu Thr Asn Phe Val Gly Thr Thr Ile  
 50 55 60  
 Leu Leu Gln Thr Asp Pro Lys Lys Arg Ala Glu Leu Ile Gln Lys Phe

65		70		75		80
Ile Gln Val Ala Asp His Cys Arg Glu Leu Asn Asn Phe Asn Ser Leu						
	85		90		95	
Leu Ala Ile Ile Ser Ala Leu Tyr Ser Ser Pro Ile Tyr Arg Leu Lys						
	100		105		110	
Lys Thr Trp Gln Tyr Val Pro Pro Gln Ser Leu Lys Leu Phe Glu Glu						
	115		120		125	
Leu Asn Lys Leu Met Asp Ser Asp Arg Asn Phe Ser Asn Tyr Arg Glu						
	130		135		140	
Leu Leu Lys Ser Ile Phe Pro Leu Pro Cys Val Pro Phe Phe Gly Val						
	145		150		155	160
Tyr Leu Ser Asp Leu Thr Phe Leu Glu Glu Gly Asn Pro Asp Phe Leu						
	165		170		175	
Glu Thr Asn Leu Val Asn Phe Ser Lys Arg Arg Lys						
	180		185			

<210> 340

<211> 89

<212> PRT

<213> Homo sapiens

<400> 340

Val Leu Arg Val Tyr Phe Gln Asp Leu Lys Pro Gly Val Ala Tyr Lys															
1		5				10						15			
Thr Ile Arg Val Ser Ser Glu Asp Thr Ala Pro Asp Val Val Gln Leu															
	20					25						30			
Ala Leu Glu Lys Phe Arg Leu Asp Asp Glu Asp Pro Glu Glu Tyr Ala															
	35					40						45			
Leu Val Glu Val Leu Ser Gly Asp Lys Glu Arg Lys Leu Pro Asp Asp															
	50					55						60			
Glu Asn Pro Leu Gln Leu Arg Leu Asn Leu Pro Arg Asp Gly Leu Ser															
	65					70						75			80
Leu Arg Phe Leu Leu Lys Arg Arg Asp															
						85									

<210> 341

<211> 89

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ras  
association (RalGDS/AF-6) domain sequence

<400> 341

Val Leu Arg Val Tyr Phe Gln Asp Leu Lys Pro Gly Val Ala Tyr Lys  
1 5 10 15

Thr Ile Arg Val Ser Ser Glu Asp Thr Ala Pro Asp Val Val Gln Leu  
20 25 30

Ala Leu Glu Lys Phe Arg Leu Asp Asp Glu Asp Pro Glu Glu Tyr Ala  
35 40 45

Leu Val Glu Val Leu Ser Gly Asp Lys Glu Arg Lys Leu Pro Asp Asp  
50 55 60

Glu Asn Pro Leu Gln Leu Arg Leu Asn Leu Pro Arg Asp Gly Leu Ser  
65 70 75 80

Leu Arg Phe Leu Leu Lys Arg Arg Asp  
85

<210> 342

<211> 83

<212> PRT

<213> Homo sapiens

<400> 342

Val Ile Arg Val Ser Ile Asp Asn Asp His Gly Asn Leu Tyr Arg Ser  
1 5 10 15

Ile Leu Leu Thr Ser Gln Asp Lys Ala Pro Ser Val Val Arg Arg Ala  
20 25 30

Leu Gln Lys His Asn Val Pro Gln Pro Trp Ala Cys Asp Tyr Gln Leu  
35 40 45

Phe Gln Val Leu Pro Gly Asp Arg Leu Leu Ile Pro Asp Asn Ala Asn  
50 55 60

Val Phe Tyr Ala Met Ser Pro Val Ala Pro Arg Asp Phe Met Leu Arg  
65 70 75 80

Arg Lys Glu

<210> 343

<211> 86

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ras  
association (RalGDS/AF-6) domain sequence

<400> 343

Val Leu Arg Val Tyr Phe Asp Asp Pro Gly Gly Thr Tyr Lys Thr Leu  
1 5 10 15

Arg Val Ser Lys Arg Thr Thr Ala Arg Asp Val Ile Gln Gln Leu Leu  
20 25 30

Glu Lys Phe His Leu Thr Asp Asp Pro Glu Glu Tyr Val Leu Val Glu  
35 40 45

Val Lys Glu Gly Gly Lys Glu Arg Val Leu Leu Pro Asp Glu Lys Pro  
50 55 60

Leu Gln Leu Gln Lys Leu Trp Pro Arg Gln Gly Ser Asn Leu Arg Phe  
65 70 75 80

Val Leu Arg Lys Arg Asp  
85

<210> 344

<211> 75

<212> PRT

<213> Homo sapiens

<400> 344

Asp Pro Ser Phe Met Pro Ala Phe Leu Ala Thr Tyr Arg Thr Phe Val  
1 5 10 15

Pro Thr Ala Cys Leu Leu Gly Phe Leu Leu Pro Pro Met Pro Pro Pro  
20 25 30

Pro Pro Pro Gly Val Glu Ile Lys Lys Thr Ala Val Gln Asp Leu Ser  
 35 40 45

Phe Asn Lys Asn Leu Arg Ala Val Val Ser Val Leu Gly Ser Trp Leu  
 50 55 60

Gln Asp His Pro Gln Asp Phe Arg Asp Pro Pro  
 65 70 75

<210> 345

<211> 74

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: RasGEFN  
 domain sequence

<400> 345

Asp Pro Thr Phe Val Glu Thr Phe Leu Leu Thr Tyr Arg Ser Phe Ile  
 1 5 10 15

Thr Thr Gln Glu Leu Leu Gln Lys Leu Leu Tyr Arg Tyr Asn Ala Ile  
 20 25 30

Pro Pro Glu Gly Val Glu Asp Ile Trp Val Lys Glu Lys Val Asn Pro  
 35 40 45

Arg Arg Ile Gln Asn Arg Val Leu Asn Ile Leu Arg Leu Trp Val Glu  
 50 55 60

Asn Tyr Trp Gln Asp Phe Glu Glu Asp Pro  
 65 70

<210> 346

<211> 184

<212> PRT

<213> Homo sapiens

<400> 346

Met Ser Arg Leu Ser Arg Ser Leu Leu Trp Ala Ala Thr Cys Leu Gly  
 1 5 10 15

Val Leu Cys Val Leu Ser Ala Asp Lys Asn Thr Thr Gln His Pro Asn  
 20 25 30

Val Thr Thr Leu Ala Pro Ile Ser Asn Val Thr Ser Ala Pro Val Thr  
                   35                                  40                                  45  
  
 Ser Leu Pro Leu Val Thr Thr Pro Ala Pro Glu Thr Cys Glu Gly Arg  
           50                                  55                                  60  
  
 Asn Ser Cys Val Ser Cys Phe Asn Val Ser Val Val Asn Thr Thr Cys  
   65                                  70                                  75                                  80  
  
 Phe Trp Ile Glu Cys Lys Asp Glu Ser Tyr Cys Ser His Asn Ser Thr  
                                   85                                  90                                  95  
  
 Val Ser Asp Cys Gln Val Gly Asn Thr Thr Asp Phe Cys Ser Ala Lys  
                   100                                  105                                  110  
  
 Pro Thr Val Gln Pro Ser Pro Ser Thr Thr Ser Lys Thr Val Thr Thr  
           115                                  120                                  125  
  
 Ser Gly Thr Thr Asn Asn Thr Val Thr Pro Thr Ser Gln Pro Val Arg  
   130                                  135                                  140  
  
 Lys Ser Thr Phe Asp Ala Ala Ser Phe Ile Gly Gly Ile Val Leu Val  
  145                                  150                                  155                                  160  
  
 Leu Gly Val Gln Ala Val Ile Phe Phe Leu Tyr Lys Phe Cys Lys Ser  
                                   165                                  170                                  175  
  
 Lys Glu Arg Asn Tyr His Thr Leu  
                   180

<210> 347

<211> 197

<212> PRT

<213> Homo sapiens

<400> 347

Met Ser Arg Leu Ser Arg Ser Leu Leu Trp Ala Ala Thr Cys Leu Gly  
   1                                  5                                  10                                  15  
  
 Val Leu Cys Val Leu Ser Ala Asp Lys Asn Thr Thr Gln His Pro Asn  
           20                                  25                                  30  
  
 Val Thr Thr Leu Ala Pro Ile Ser Asn Val Thr Ser Ala Pro Val Thr  
           35                                  40                                  45  
  
 Ser Leu Pro Leu Val Thr Thr Pro Ala Pro Glu Thr Cys Glu Gly Arg  
   50                                  55                                  60

Asn Ser Cys Val Ser Cys Phe Asn Val Ser Val Val Asn Thr Thr Cys  
65 70 75 80

Phe Trp Ile Glu Cys Lys Asp Glu Ser Tyr Cys Ser His Asn Ser Thr  
85 90 95

Val Ser Asp Cys Gln Val Gly Asn Thr Thr Asp Phe Cys Ser Val Ser  
100 105 110

Thr Ala Thr Pro Val Pro Thr Ala Asn Ser Thr Ala Lys Pro Thr Val  
115 120 125

Gln Pro Ser Pro Ser Thr Thr Ser Lys Thr Val Thr Thr Ser Gly Thr  
130 135 140

Thr Asn Asn Thr Val Thr Pro Thr Ser Gln Pro Val Arg Lys Ser Thr  
145 150 155 160

Phe Asp Ala Ala Ser Phe Ile Gly Gly Ile Val Leu Val Leu Gly Val  
165 170 175

Gln Ala Val Ile Phe Phe Leu Tyr Lys Phe Cys Lys Ser Lys Glu Arg  
180 185 190

Asn Tyr His Thr Leu  
195

<210> 348

<211> 178

<212> PRT

<213> Homo sapiens

<400> 348

Met Ser Arg Leu Ser Arg Ser Leu Leu Trp Ala Ala Thr Cys Leu Gly  
1 5 10 15

Val Leu Cys Val Leu Ser Ala Asp Lys Asn Thr Thr Gln His Pro Asn  
20 25 30

Val Thr Thr Leu Ala Pro Ile Ser Asn Val Thr Ser Ala Pro Val Thr  
35 40 45

Ser Leu Pro Leu Val Thr Thr Pro Ala Pro Glu Thr Cys Glu Gly Arg  
50 55 60

Asn Ser Cys Val Ser Cys Phe Asn Val Ser Val Val Asn Thr Thr Cys



65					70					75					80
Phe	Trp	Ile	Glu	Cys	Lys	Asp	Glu	Ser	Tyr	Cys	Ser	His	Asn	Ser	Thr
				85					90					95	
Val	Ser	Asp	Cys	Gln	Val	Gly	Asn	Thr	Thr	Asp	Phe	Cys	Ser	Val	Ser
			100					105					110		
Thr	Ala	Thr	Pro	Val	Pro	Thr	Ala	Asn	Ser	Thr	Gly	Thr	Thr	Asn	Asn
		115						120					125		
Thr	Val	Thr	Pro	Thr	Ser	Gln	Pro	Val	Arg	Lys	Ser	Thr	Phe	Asp	Ala
	130					135					140				
Ala	Ser	Phe	Ile	Gly	Gly	Ile	Val	Leu	Val	Leu	Gly	Val	Gln	Ala	Val
145					150					155					160
Ile	Phe	Phe	Leu	Tyr	Lys	Phe	Cys	Lys	Ser	Lys	Glu	Arg	Asn	Tyr	His
			165						170					175	
Thr	Leu														

<210> 349  
 <211> 189  
 <212> PRT  
 <213> Homo sapiens

<400> 349
Met Ser Arg Leu Ser Arg Ser Leu Leu Trp Ala Ala Thr Cys Leu Gly
1 5 10 15
Val Leu Cys Val Leu Ser Ala Asp Lys Asn Thr Thr Gln His Pro Asn
20 25 30
Val Thr Thr Leu Ala Pro Ile Ser Asn Val Thr Ser Ala Pro Val Thr
35 40 45
Ser Leu Pro Leu Val Thr Thr Pro Ala Pro Glu Thr Cys Glu Gly Arg
50 55 60
Asn Ser Cys Val Ser Cys Phe Asn Val Ser Val Val Asn Thr Thr Cys
65 70 75 80
Phe Trp Ile Glu Cys Lys Asp Glu Ser Tyr Cys Ser His Asn Ser Thr
85 90 95

Val Ser Asp Cys Gln Val Gly Asn Thr Thr Asp Phe Cys Ser Val Ser  
100 105 110

Thr Ala Thr Pro Val Pro Thr Ala Asn Ser Thr Ala Lys Pro Thr Val  
115 120 125

Gln Pro Ser Pro Ser Thr Thr Ser Lys Thr Val Thr Thr Ser Gly Thr  
130 135 140

Thr Asn Asn Thr Val Thr Pro Thr Ser Gln Pro Val Arg Lys Ser Thr  
145 150 155 160

Phe Asp Ala Ala Ser Phe Ile Gly Gly Ile Val Leu Val Leu Glu Ile  
165 170 175

Arg Cys His Thr Arg Asn Tyr Ile Pro Asp Leu Lys Lys  
180 185

<210> 350

<211> 195

<212> PRT

<213> Rattus norvegicus

<400> 350

Met Ser Gly Ala Ser Arg Gly Leu Phe Trp Ala Ala Thr Cys Leu Ala  
1 5 10 15

Ala Leu Cys Leu Ser Ala Ala Gln Ser Asn Ser Ser Ala Ser Pro Asn  
20 25 30

Val Thr Asp Pro Pro Thr Thr Thr Ser Lys Val Val Pro Thr Thr Leu  
35 40 45

Thr Thr Thr Lys Pro Pro Glu Thr Cys Glu Ser Phe Asn Ser Cys Val  
50 55 60

Ser Cys Val Asn Ala Thr Leu Thr Asn Asn Ile Thr Cys Val Trp Leu  
65 70 75 80

Asp Cys His Glu Ala Asn Lys Thr Tyr Cys Ser Ser Glu Leu Val Ser  
85 90 95

Asn Cys Thr Gln Lys Thr Ser Thr Asp Ser Cys Ser Val Ile Pro Thr  
100 105 110

Thr Pro Val Pro Thr Asn Ser Thr Ala Lys Pro Thr Thr Arg Pro Ser  
115 120 125

Ser Pro Thr Pro Thr Pro Ser Val Val Thr Ser Ala Gly Ala Thr Asn  
 130 135 140

Thr Thr Val Thr Pro Thr Ser Gln Pro Glu Arg Lys Ser Thr Phe Asp  
 145 150 155 160

Ala Ala Ser Phe Ile Gly Gly Ile Val Leu Val Leu Gly Val Gln Ala  
 165 170 175

Val Ile Phe Phe Leu Tyr Lys Phe Cys Lys Ser Lys Glu Arg Asn Tyr  
 180 185 190

His Thr Leu  
 195

<210> 351

<211> 407

<212> PRT

<213> Homo sapiens

<400> 351

Met Ala Val Pro Trp Leu Val Leu Leu Leu Ala Leu Pro Ile Phe Phe  
 1 5 10 15

Leu Gly Val Phe Val Trp Ala Val Phe Glu His Phe Leu Thr Thr Asp  
 20 25 30

Ile Pro Ala Thr Leu Gln His Pro Ala Lys Leu Arg Phe Leu His Cys  
 35 40 45

Ile Phe Leu Tyr Leu Val Thr Leu Gly Asn Ile Phe Glu Lys Leu Gly  
 50 55 60

Ile Cys Ser Met Pro Lys Phe Ile Arg Phe Leu His Asp Ser Val Arg  
 65 70 75 80

Ile Lys Lys Asp Pro Glu Leu Val Val Thr Asp Leu Arg Phe Gly Thr  
 85 90 95

Ile Pro Val Arg Leu Phe Gln Pro Lys Ala Ala Ser Ser Arg Pro Arg  
 100 105 110

Arg Gly Ile Ile Phe Tyr His Gly Gly Ala Thr Val Phe Gly Ser Leu  
 115 120 125

Asp Cys Tyr His Gly Leu Cys Asn Tyr Leu Ala Arg Glu Thr Glu Ser



385                      390                      395                      400  
 Val Ser Tyr Ile Lys Gly Ile  
                          405  
  
 <210> 352  
 <211> 409  
 <212> PRT  
 <213> Homo sapiens  
  
 <400> 352  
 Met Lys Lys Thr Glu Asp Asn Asn Thr Leu Val Phe Ser Val Asp Val  
   1                          5                          10                          15  
  
 Lys Ala Asn Asn Gly Trp Pro Pro Cys Glu Thr Glu Ser Pro Pro Leu  
                           20                          25                          30  
  
 His Leu Pro Ala Ala Val Asp Met Asp Leu Pro Pro Leu Lys Tyr Asp  
                           35                          40                          45  
  
 Pro Asp Val Val Val Thr Asp Phe Arg Phe Gly Thr Ile Pro Val Lys  
                           50                          55                          60  
  
 Leu Tyr Gln Ser Lys Ala Ser Thr Cys Thr Leu Lys Pro Gly Ile Val  
   65                          70                          75                          80  
  
 Tyr Tyr His Gly Gly Gly Gly Val Met Gly Ser Leu Ser Lys Asn His  
                           85                          90                          95  
  
 Phe Leu Arg Pro Pro Lys Gly Met Asp Trp Arg Val Gly Val Leu Glu  
                           100                          105                          110  
  
 Lys Val Val Gln Ala Val Pro Arg Arg Arg Ile Ser Glu Lys Ile Asp  
                           115                          120                          125  
  
 Arg Lys Phe Ala Gly Val Glu Glu Asn Leu Val Gly Ile Gly Pro Ser  
                           130                          135                          140  
  
 Ala Val Ser Val Gly Arg Arg Arg Tyr Arg Lys Leu Pro Lys His Lys  
   145                          150                          155                          160  
  
 Phe Pro Val Pro Val Arg Asp Cys Leu Val Ala Thr Ile His Phe Leu  
                           165                          170                          175  
  
 Lys Ser Leu Asp Ala Tyr Gly Val Asp Pro Ala Arg Val Val Val Cys  
                           180                          185                          190

Gly Asp Ser Phe Gly Gly Ala Ile Ala Ala Val Val Cys Gln Gln Leu  
 195 200 205  
 Val Asp Arg Pro Asp Leu Pro Arg Ile Arg Ala Gln Ile Leu Ile Tyr  
 210 215 220  
 Ala Ile Leu Gln Ala Leu Asp Leu Gln Thr Pro Ser Phe Gln Gln Arg  
 225 230 235 240  
 Lys Asn Ile Pro Leu Leu Thr Trp Ser Phe Ile Cys Tyr Cys Phe Phe  
 245 250 255  
 Gln Asn Leu Asp Phe Ser Ser Ser Trp Gln Glu Val Ile Met Lys Gly  
 260 265 270  
 Ala His Leu Pro Ala Glu Val Trp Glu Lys Tyr Arg Lys Trp Leu Gly  
 275 280 285  
 Pro Glu Asn Ile Pro Glu Arg Phe Lys Glu Arg Gly Tyr Gln Leu Lys  
 290 295 300  
 Pro His Glu Pro Met Asn Glu Ala Ala Tyr Leu Glu Val Ser Val Val  
 305 310 315 320  
 Leu Asp Val Met Cys Ser Pro Leu Ile Ala Glu Asp Asp Ile Val Ser  
 325 330 335  
 Gln Leu Pro Glu Thr Cys Ile Val Ser Cys Glu Tyr Asp Ala Leu Arg  
 340 345 350  
 Asp Asn Ser Leu Leu Tyr Lys Lys Arg Leu Glu Asp Leu Gly Val Pro  
 355 360 365  
 Val Thr Trp His His Met Glu Asp Gly Phe His Gly Val Leu Arg Thr  
 370 375 380  
 Ile Asp Met Ser Phe Leu His Phe Pro Cys Ser Met Arg Ile Leu Ser  
 385 390 395 400  
 Ala Leu Val Gln Phe Val Lys Gly Leu  
 405

<210> 353

<211> 398

<212> PRT

<213> Orycctolagus cuniculus

<400> 353

Gly Val Lys Thr Val Leu Leu Leu Ile Val Gly Val Leu Gly Ala Tyr  
1 5 10 15

Tyr Val Tyr Thr Pro Leu Pro Asp Asn Ile Glu Glu Pro Trp Arg Leu  
20 25 30

Leu Trp Val Asn Ala His Met Lys Thr Leu Thr Asn Leu Ala Leu Phe  
35 40 45

Ala Glu Tyr Leu Gly Ser Asn Ile Phe Met Asn Thr Val Lys Phe Leu  
50 55 60

Thr Ser Phe Gln Glu Val Pro Pro Thr Ser Asp Glu Asn Val Thr Val  
65 70 75 80

Thr Glu Thr Thr Phe Asn Asn Val Pro Val Arg Val Tyr Val Pro Lys  
85 90 95

Arg Lys Ser Lys Thr Leu Arg Arg Gly Leu Phe Tyr Ile His Gly Gly  
100 105 110

Gly Trp Cys Val Gly Ser Ala Ala Leu Ser Gly Tyr Asp Leu Leu Ser  
115 120 125

Arg Arg Thr Ala Asp Arg Leu Asp Val Val Val Val Ser Thr Asn Tyr  
130 135 140

Arg Leu Ala Pro Glu Tyr His Phe Pro Ile Gln Phe Glu Asp Val Tyr  
145 150 155 160

Asp Ala Leu Lys Trp Phe Leu Arg Gln Asp Val Leu Glu Lys Tyr Gly  
165 170 175

Val Asp Pro Glu Arg Val Gly Val Ser Gly Asp Ser Ala Gly Gly Asn  
180 185 190

Leu Ala Ala Ala Val Ala Gln Gln Leu Ile Lys Asp Pro Asp Val Lys  
195 200 205

Ile Lys Leu Lys Thr Gln Ser Leu Ile Tyr Pro Ala Leu Gln Thr Leu  
210 215 220

Asp Met Asp Leu Pro Ser Tyr Arg Glu Asn Ala Gln Phe Pro Ile Leu  
225 230 235 240

Ser Lys Ser Phe Met Val Arg Leu Trp Ser Glu Tyr Phe Thr Ser Asp  
245 250 255

Arg Ser Leu Glu Lys Ala Met Leu Leu Asn Gln His Val Pro Val Glu  
260 265 270

Ser Ser His Leu Phe Lys Phe Thr Asn Trp Ser Ser Leu Leu Pro Glu  
275 280 285

Lys Phe Lys Lys Gly His Val Tyr Asn Thr Pro Thr Tyr Gly Ser Ser  
290 295 300

Glu Leu Ala Arg Lys Tyr Pro Gly Phe Leu Asp Val Arg Ala Ala Pro  
305 310 315 320

Leu Leu Ala Asp Asp Ala Gln Leu Arg Gly Phe Pro Leu Thr Tyr Val  
325 330 335

Ile Thr Cys Gln Tyr Asp Val Leu Arg Asp Asp Gly Val Met Tyr Val  
340 345 350

Thr Arg Leu Arg Asn Ala Gly Val Gln Val Thr His Asn His Ile Glu  
355 360 365

Asp Gly Phe His Gly Ala Leu Ser Tyr Asn Gly Phe Lys Thr Gly Tyr  
370 375 380

Arg Val Glu Lys Gln Tyr Phe Glu Trp Leu Arg Glu Asn Val  
385 390 395

<210> 354

<211> 399

<212> PRT

<213> Homo sapiens

<400> 354

Met Gly Arg Lys Ser Leu Tyr Leu Leu Ile Val Gly Ile Leu Ile Ala  
1 5 10 15

Tyr Tyr Ile Tyr Thr Pro Leu Pro Asp Asn Val Glu Glu Pro Trp Arg  
20 25 30

Met Met Trp Ile Asn Ala His Leu Lys Thr Ile Gln Asn Leu Ala Thr  
35 40 45

Phe Val Glu Leu His Gly Ser Ser Ile Phe Met Asp Ser Phe Lys Val  
50 55 60

Val Gly Ser Phe Asp Glu Val Pro Pro Thr Ser Asp Glu Asn Val Thr



65					70					75				80	
Val	Thr	Glu	Thr	Lys	Phe	Asn	Asn	Ile	Leu	Val	Arg	Val	Tyr	Val	Pro
				85					90					95	
Lys	Arg	Lys	Ser	Glu	Ala	Leu	Arg	Arg	Gly	Leu	Phe	Tyr	Ile	His	Gly
			100					105					110		
Gly	Gly	Trp	Cys	Val	Gly	Ser	Ala	Ala	Leu	Ser	Gly	Tyr	Asp	Leu	Leu
		115					120					125			
Ser	Arg	Trp	Thr	Ala	Asp	Arg	Leu	Asp	Ala	Val	Val	Val	Ser	Thr	Asn
	130					135					140				
Tyr	Arg	Leu	Ala	Pro	Lys	Tyr	His	Phe	Pro	Ile	Gln	Phe	Glu	Asp	Val
145					150					155					160
Tyr	Asn	Ala	Leu	Arg	Trp	Phe	Leu	Arg	Lys	Lys	Val	Leu	Ala	Lys	Tyr
			165						170					175	
Gly	Val	Asn	Pro	Glu	Arg	Ile	Gly	Ile	Ser	Gly	Asp	Ser	Ala	Gly	Gly
		180						185					190		
Asn	Leu	Ala	Ala	Ala	Val	Thr	Gln	Gln	Leu	Leu	Asp	Asp	Pro	Asp	Val
	195						200					205			
Lys	Ile	Lys	Leu	Lys	Ile	Gln	Ser	Leu	Ile	Tyr	Pro	Ala	Leu	Gln	Pro
	210					215					220				
Leu	Asp	Val	Asp	Leu	Pro	Ser	Tyr	Gln	Glu	Asn	Ser	Asn	Phe	Leu	Phe
225					230					235					240
Leu	Ser	Lys	Ser	Leu	Met	Val	Arg	Phe	Trp	Ser	Glu	Tyr	Phe	Thr	Thr
			245						250					255	
Asp	Arg	Ser	Leu	Glu	Lys	Ala	Met	Leu	Ser	Arg	Gln	His	Val	Pro	Val
		260						265					270		
Glu	Ser	Ser	His	Leu	Phe	Lys	Phe	Ile	Asn	Trp	Ser	Ser	Leu	Leu	Pro
	275						280					285			
Glu	Arg	Phe	Ile	Lys	Gly	His	Val	Tyr	Asn	Asn	Pro	Asn	Tyr	Gly	Ser
	290					295					300				
Ser	Glu	Leu	Ala	Lys	Lys	Tyr	Pro	Gly	Phe	Leu	Asp	Val	Arg	Ala	Ala
305					310					315					320
Pro	Leu	Leu	Ala	Asp	Asp	Asn	Lys	Leu	Arg	Gly	Leu	Pro	Leu	Thr	Tyr



Gly	Leu	Ala	Pro	Lys	Tyr	His	Phe	Pro	Lys	Gln	Phe	Glu	Asp	Val	Tyr		
145					150					155					160		
His	Ser	Leu	Arg	Trp	Phe	Leu	Gln	Glu	Asp	Ile	Leu	Glu	Lys	Tyr	Gly		
				165					170					175			
Val	Asp	Pro	Arg	Arg	Val	Gly	Val	Ser	Gly	Asp	Ser	Ala	Gly	Gly	Asn		
			180					185					190				
Leu	Thr	Ala	Ala	Val	Thr	Gln	Gln	Ile	Leu	Gln	Asp	Pro	Asp	Val	Lys		
		195					200					205					
Ile	Lys	Leu	Lys	Val	Gln	Ala	Leu	Ile	Tyr	Pro	Ala	Leu	Gln	Ala	Leu		
	210					215					220						
Asp	Met	Asn	Val	Pro	Ser	Gln	Gln	Glu	Asn	Ser	Gln	Tyr	Pro	Leu	Leu		
225					230					235					240		
Thr	Arg	Ser	Leu	Leu	Ile	Arg	Phe	Trp	Ser	Glu	Tyr	Phe	Thr	Thr	Asp		
			245						250					255			
Arg	Asp	Leu	Glu	Lys	Ala	Met	Leu	Leu	Asn	Gln	His	Val	Pro	Val	Glu		
		260					265					270					
Phe	Ser	His	Leu	Leu	Gln	Phe	Val	Asn	Trp	Ser	Ser	Leu	Leu	Pro	Gln		
	275					280						285					
Arg	Tyr	Lys	Lys	Gly	Tyr	Phe	Tyr	Lys	Thr	Pro	Thr	Pro	Gly	Ser	Leu		
	290					295					300						
Glu	Leu	Ala	Gln	Lys	Tyr	Pro	Gly	Phe	Thr	Asp	Val	Lys	Ala	Cys	Pro		
305				310					315					320			
Leu	Leu	Ala	Asn	Asp	Ser	Ile	Leu	His	His	Leu	Pro	Met	Thr	Tyr	Ile		
			325					330						335			
Ile	Thr	Cys	Gln	Tyr	Asp	Val	Leu	Arg	Asp	Asp	Gly	Leu	Met	Tyr	Val		
		340					345					350					
Lys	Arg	Leu	Gln	Asn	Thr	Gly	Val	His	Val	Thr	His	His	His	Ile	Glu		
	355					360					365						
Asp	Gly	Phe	His	Gly	Ala	Leu	Thr	Leu	Pro	Gly	Leu	Lys	Ile	Thr	Tyr		
	370				375					380							
Arg	Met	Gln	Asn	Gln	Tyr	Leu	Asn	Trp	Leu	His	Lys	Asn	Leu				
385				390					395								

<210> 356  
 <211> 109  
 <212> PRT  
 <213> Homalozoon vermiculare

<400> 356  
 Leu Phe Gln Pro Lys Ala Ala Ser Ser Arg Pro Arg Arg Gly Ile Ile  
     1                    5                    10                    15  
 Phe Tyr His Gly Gly Ala Thr Val Phe Gly Ser Leu Asp Cys Tyr His  
                     20                    25                    30  
 Gly Leu Cys Asn Tyr Leu Ala Arg Glu Thr Glu Ser Val Leu Leu Met  
                     35                    40                    45  
 Ile Gly Tyr Arg Lys Leu Pro Asp His His Ser Pro Ala Leu Phe Gln  
                     50                    55                    60  
 Asp Cys Met Asn Ala Ser Ile His Phe Leu Lys Ala Leu Glu Thr Tyr  
     65                    70                    75                    80  
 Gly Val Asp Pro Ser Arg Val Val Val Cys Gly Glu Ser Val Gly Gly  
                     85                    90                    95  
 Ala Ala Val Ala Ala Ile Thr Gln Ala Leu Val Gly Arg  
                     100                    105

<210> 357  
 <211> 118  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:  
         Carboxylesterase domain sequence

<400> 357  
 Val Tyr Thr Pro Lys Asn Arg Lys Pro Asn Ser Lys Leu Pro Val Met  
     1                    5                    10                    15  
 Val Trp Ile His Gly Gly Gly Phe Met Phe Gly Ser Gly Leu Ser Leu  
                     20                    25                    30  
 Tyr Asp Gly Glu Ser Leu Ala Arg Glu Gly Asn Val Ile Val Val Ser  
                     35                    40                    45

Ile Asn Tyr Arg Leu Gly Pro Leu Gly Phe Leu Ser Thr Gly Asp Asp  
50 55 60

Val Leu Pro Gly Asn Tyr Gly Leu Leu Asp Gln Arg Leu Ala Leu Lys  
65 70 75 80

Trp Val Gln Asp Asn Ile Ala Ala Phe Gly Gly Asp Pro Asp Ser Val  
85 90 95

Thr Ile Phe Gly Glu Ser Ala Gly Gly Ala Ser Val Ser Leu Leu Leu  
100 105 110

Leu Ser Pro Ser Ser Lys  
115

<210> 358

<211> 280

<212> PRT

<213> Homo sapiens

<400> 358

Met Leu Leu Gly Asn Leu Ala Ile Ile Ser Phe Ile Cys Leu Asp Ser  
1 5 10 15

Arg Leu His Ser Pro Met Tyr Phe Phe Leu Cys Asn Phe Ser Leu Met  
20 25 30

Glu Met Val Val Thr Ser Thr Val Val His Arg Met Leu Ala Asp Leu  
35 40 45

Leu Ser Thr His Lys Thr Met Ser Leu Ala Lys Cys Leu Thr Gln Ser  
50 55 60

Phe Phe Tyr Phe Ser Leu Gly Ser Ala Asn Phe Leu Ile Leu Met Val  
65 70 75 80

Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Pro  
85 90 95

Thr Ile Thr Asn Gly Pro Val Cys Val Lys Leu Val Val Ala Cys Trp  
100 105 110

Val Val Gly Phe Leu Ser Ile Val Ser Pro Thr Leu Gln Lys Thr Arg  
115 120 125

Leu Trp Phe Cys Gly Pro Asn Ile Ile Gly His Tyr Phe Cys Asp Ser  
130 135 140

Ala Pro Leu Leu Lys Leu Ala Cys Ser Asp Thr Arg His Ile Glu Arg  
 145 150 155 160

Met Asp Leu Phe Leu Ser Leu Leu Phe Val Leu Thr Thr Met Leu Leu  
 165 170 175

Ile Ile Leu Ser Tyr Ile Leu Ile Val Ala Ala Val Leu His Ile Pro  
 180 185 190

Ser Ser Ser Gly Cys Gln Lys Ala Phe Ser Thr Cys Ala Ser His Leu  
 195 200 205

Thr Val Val Val Leu Gly Tyr Gly Ser Ala Ile Phe Ile Tyr Val Arg  
 210 215 220

Pro Gly Lys Gly His Ser Thr Tyr Leu Asn Lys Ala Val Ala Met Val  
 225 230 235 240

Thr Ala Met Val Thr Pro Phe Leu Asn Pro Phe Ile Phe Thr Phe Arg  
 245 250 255

Asn Glu Lys Val Lys Glu Val Ile Glu Asp Val Thr Lys Arg Ile Phe  
 260 265 270

Leu Gly Asp Pro Ala Ala Cys Arg  
 275 280

<210> 359

<211> 216

<212> PRT

<213> Homo sapiens

<400> 359

Leu Met Glu Met Val Val Thr Ser Thr Val Val His Arg Met Leu Ala  
 1 5 10 15

Asp Leu Leu Ser Thr His Lys Thr Met Ser Leu Ala Lys Cys Leu Thr  
 20 25 30

Gln Ser Phe Phe Tyr Phe Ser Leu Gly Ser Ala Asn Phe Leu Ile Leu  
 35 40 45

Met Val Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg  
 50 55 60

Tyr Pro Thr Ile Thr Asn Gly Pro Val Cys Val Lys Leu Val Val Ala



Thr	Ser	Pro	Val	Arg	Glu	Asp	Gly	Ala	Glu	Asn	Gly	Leu	Gly	Phe	His	
65					70					75					80	
Gln	Pro	Val	Glu	Leu	His	Ile	Cys	Gly	Asp	Ala	Val	Gly	Phe	Val	Gly	
				85					90					95		
Met	Gly	Gln	Arg	Arg	Lys	Pro	Met	Ser	Val	Pro	Trp	Ser	His	Pro	Lys	
			100					105					110			
Ile	Ser	Glu	Lys	Cys	Ala	Ser	Asp	Thr	Trp	Cys	Thr	Asp	Ala	Thr	Tyr	
	115						120					125				
His	Arg	Glu	His	Ser	Lys	Pro	Ser	Gly	Pro	Trp	Glu	His	Gly	Pro	Leu	
	130					135					140					
Lys	Pro	Phe	Glu	Asp	Trp	Val	Pro	Ala	Leu	Pro	Tyr	Pro	Leu	Trp	Pro	
145					150					155					160	
Gln	Glu	Leu	Leu	His	Cys	Gly	Ser	Gln	Ser	Gly	Asp	Cys	Met	Cys	Leu	
				165				170						175		
Leu	Leu	Leu	Glu	Ser	Ser	Arg	Arg	Ser	Pro	Pro	Thr	Leu	Pro	Ile	Pro	
			180					185					190			
Leu	Thr	Phe	Pro	Arg	Leu	Cys	Gln	Ser	Phe	Pro	Leu	Leu	Thr	Ala	Ser	
	195						200					205				
Gly	Lys	Glu	Pro	Ser	Cys	Gly	Phe	Thr	Ser	Ala	Leu	Arg	Arg	Leu	Tyr	
	210					215					220					
Gly	Cys	Gly	Ala	Ala	Glu	Arg	Pro	Gln	Ser	Pro	Val	Thr	Pro	Lys	Thr	
225					230					235				240		
Glu	Thr	Ser	Glu	Gln	Gly	Pro	Lys	Asp	Pro	Pro	Ile	His	Leu	Ala	His	
				245				250						255		
Pro	Ser	Asp	Arg	Ala	Leu	Ser	Pro	Ser	Cys	Phe	Leu	Ser	Leu	Arg	Ala	
			260					265					270			
Val	Ile	Leu	Thr	Cys	Lys	Asn	Arg	Asp	Ala	Gln	Val	Glu	Glu	Gly	His	
	275						280					285				
Arg	Arg	Glu	Pro	Pro	Val	Leu	Asp	Cys	Gly	Tyr	Gln	Arg	Ser	Gly	Thr	
	290					295					300					
Arg	Gly	Asn	His	Thr	Arg	Arg	Ile	Cys	Ser	Thr	Leu	Arg	Gly	Ser	Arg	
305					310					315					320	



Ile Glu Ala Trp Val Ala Ala Ala Thr Leu Gln Arg Gly Pro Tyr Phe  
 325 330 335  
 Arg Lys Gln Gln Pro Leu Gly Lys Asp Ser Trp Ser Val Ala Glu Asp  
 340 345 350  
 Trp Ile Glu Ala Phe Met Leu Ala Phe Gly Val Arg Val Leu Trp Asp  
 355 360 365  
 Ala Ser Met Ala Leu Glu Ala Gln Arg Asp Pro Ser Ser Asn Asp Thr  
 370 375 380  
 Lys Gly Lys Asp Gln Leu Thr Lys Arg Asp Gln Arg Asn Pro Gln Asn  
 385 390 395 400  
 Phe Ala Leu Leu Gln Lys Ser Ala Ala Ser Asp Trp Asn Ser Gln Pro  
 405 410 415  
 Val Cys Arg Arg Gly Tyr Leu Thr Cys Ala Ser Ala Ser Leu Gly Glu  
 420 425 430  
 Ile Ser Ser Pro His Phe Pro Val His Leu Asn Ala Pro Lys Cys His  
 435 440 445  
 Trp Gly Leu Ser Ser Ser Pro Val Glu Arg Trp Met Leu Arg Glu Arg  
 450 455 460  
 Lys Ala Val Thr Asp Glu Ser Ser Ser Ser Trp Met Val Ala Ile Arg  
 465 470 475 480  
 Ala Arg Glu Thr Pro Gly Ile Leu Ala Gln Arg Ile Cys Ser Ala Leu  
 485 490 495  
 Lys Gly Val Trp Cys Gln Ala Ala Gln Gly Ser Leu Pro Arg Leu Leu  
 500 505 510  
 Ser Ser Leu Ser Ile Ser Thr Gly Cys Asp Lys Thr Ala Val Leu Thr  
 515 520 525  
 Phe Asp Arg Ala Leu Leu Thr Arg Glu His Ser Lys Pro Asn Gly Pro  
 530 535 540  
 Trp Glu Arg Gly Pro Leu Lys Pro Ser Gly Asp Trp Asp Thr Cys Leu  
 545 550 555 560  
 His Tyr Leu Leu Trp Pro Gln Glu Leu Phe His Cys Arg Ser Gln Thr  
 565 570 575

Glu	Asp	Tyr	Thr	Val	Thr	Trp	Phe	Asp	Val	Val	Asp	Arg	Gln	Met	Gln	580	585	590
Lys	Tyr	Ser	Gln	Ser	Pro	Phe	Leu	Glu	Gln	Arg	Val	Lys	Lys	Thr	Met	595	600	605
Ser	Pro	Asp	Gly	Asn	His	Ser	Ser	Asp	Pro	Thr	Glu	Phe	Val	Leu	Ala	610	615	620
Gly	Leu	Pro	Asn	Leu	Asn	Ser	Ala	Arg	Val	Glu	Leu	Phe	Ser	Val	Phe	625	630	635
Leu	Leu	Val	Tyr	Leu	Leu	Asn	Leu	Thr	Gly	Asn	Val	Leu	Ile	Val	Gly	645	650	655
Val	Val	Arg	Ala	Asp	Thr	Arg	Leu	Gln	Thr	Pro	Met	Tyr	Phe	Phe	Leu	660	665	670
Gly	Asn	Leu	Ser	Cys	Leu	Glu	Ile	Leu	Leu	Thr	Ser	Val	Ile	Ile	Pro	675	680	685
Lys	Met	Leu	Ser	Asn	Phe	Leu	Ser	Arg	Gln	His	Thr	Ile	Ser	Phe	Ala	690	695	700
Ala	Cys	Ile	Thr	Gln	Phe	Tyr	Phe	Tyr	Phe	Phe	Leu	Gly	Ala	Ser	Glu	705	710	715
Phe	Leu	Leu	Leu	Ala	Val	Met	Ser	Ala	Asp	Arg	Tyr	Leu	Ala	Ile	Cys	725	730	735
His	Pro	Leu	Arg	Tyr	Pro	Leu	Leu	Met	Ser	Gly	Ala	Val	Cys	Phe	Arg	740	745	750
Val	Ala	Leu	Ala	Cys	Trp	Val	Gly	Gly	Leu	Val	Pro	Val	Leu	Gly	Pro	755	760	765
Thr	Val	Ala	Val	Ala	Leu	Leu	Pro	Phe	Cys	Lys	Gln	Gly	Ala	Val	Val	770	775	780
Gln	His	Phe	Phe	Cys	Asp	Ser	Gly	Pro	Leu	Leu	Arg	Leu	Ala	Cys	Thr	785	790	795
Asn	Thr	Lys	Lys	Leu	Glu	Glu	Thr	Asp	Phe	Val	Leu	Ala	Ser	Leu	Val	805	810	815
Ile	Val	Ser	Ser	Leu	Leu	Ile	Thr	Ala	Val	Ser	Tyr	Gly	Leu	Ile	Val	820	825	830

Leu Ala Val Leu Ser Ile Pro Ser Ala Ser Gly Arg Gln Lys Ala Phe  
 835 840 845  
 Ser Thr Cys Thr Ser His Leu Ile Val Val Thr Leu Phe Tyr Gly Ser  
 850 855 860  
 Ala Ile Phe Leu Tyr Val Arg Pro Ser Gln Ser Gly Ser Val Asp Thr  
 865 870 875 880  
 Asn Trp Ala Val Thr Val Ile Thr Thr Phe Val Thr Pro Leu Leu Asn  
 885 890 895  
 Pro Phe Ile Tyr Ala Leu Arg Asn Glu Gln Val Lys Glu Ala Leu Lys  
 900 905 910  
 Asp Met Phe Arg Lys Gly Cys Asp Phe Ala Phe Glu Arg Cys Asn Ser  
 915 920 925  
 Ala Cys Asn Cys Arg Lys Gly Ser Leu Thr Thr Thr Thr Lys Ser Ala  
 930 935 940  
 Thr Leu Arg Cys Gly Ala Gly Ala Lys Ala Arg Ala Gly Ala Arg Leu  
 945 950 955 960  
 His Pro Ala Ala Gly Ser Pro Arg Asp Ser Arg Lys Val Asn Val Arg  
 965 970 975  
 Val Gln Lys Asp Pro Arg Arg Ser Val Pro Lys Val Glu Thr Phe Ile  
 980 985 990  
 Ser Gly Ser Gly Pro Ser Cys Val Gly Gln Cys Thr Gly Arg Val Cys  
 995 1000 1005  
 Ile Leu Lys Gly Thr Arg Thr Ile Ser Gly Gly Leu Trp Leu Glu Asp  
 1010 1015 1020  
 Pro Arg Lys Thr Arg Thr Thr Asp Phe Thr His Arg Lys Ile Lys Val  
 1025 1030 1035 1040  
 Thr Ala Gly Leu Ala Gly Glu Lys Val Glu Pro Thr Leu Pro Arg Cys  
 1045 1050 1055

<210> 361

<211> 313

<212> PRT

<213> Homo sapiens

<400> 361

Met Ala Asn Leu Ser Gln Pro Ser Glu Phe Val Leu Leu Gly Phe Ser  
1 5 10 15

Ser Phe Gly Glu Leu Gln Ala Leu Leu Tyr Gly Pro Phe Leu Met Leu  
20 25 30

Tyr Leu Leu Ala Phe Met Gly Asn Thr Ile Ile Ile Val Met Val Ile  
35 40 45

Ala Asp Thr His Leu His Thr Pro Met Tyr Phe Phe Leu Gly Asn Phe  
50 55 60

Ser Leu Leu Glu Ile Leu Val Thr Met Thr Ala Val Pro Arg Met Leu  
65 70 75 80

Ser Asp Leu Leu Val Pro His Lys Val Ile Thr Phe Thr Gly Cys Met  
85 90 95

Val Gln Phe Tyr Phe His Phe Ser Leu Gly Ser Thr Ser Phe Leu Ile  
100 105 110

Leu Thr Asp Met Ala Leu Asp Arg Phe Val Ala Ile Cys His Pro Leu  
115 120 125

Arg Tyr Gly Thr Leu Met Ser Arg Ala Met Cys Val Gln Leu Ala Gly  
130 135 140

Ala Ala Trp Ala Ala Pro Phe Leu Ala Met Val Pro Thr Val Leu Ser  
145 150 155 160

Arg Ala His Leu Asp Tyr Cys His Gly Asp Val Ile Asn His Phe Phe  
165 170 175

Cys Asp Asn Glu Pro Leu Leu Gln Leu Ser Cys Ser Asp Thr Arg Leu  
180 185 190

Leu Glu Phe Trp Asp Phe Leu Met Ala Leu Thr Phe Val Leu Ser Ser  
195 200 205

Phe Leu Val Thr Leu Ile Ser Tyr Gly Tyr Ile Val Thr Thr Val Leu  
210 215 220

Arg Ile Pro Ser Ala Ser Ser Cys Gln Lys Ala Phe Ser Thr Cys Gly  
225 230 235 240

Ser His Leu Thr Leu Val Phe Ile Gly Tyr Ser Ser Thr Ile Phe Leu  
245 250 255

Tyr Val Arg Pro Gly Lys Ala His Ser Val Gln Val Arg Lys Val Val  
260 265 270

Ala Leu Val Thr Ser Val Leu Thr Pro Phe Leu Asn Pro Phe Ile Leu  
275 280 285

Thr Phe Cys Asn Gln Thr Val Lys Thr Val Leu Gln Gly Gln Met Gln  
290 295 300

Arg Leu Lys Gly Leu Cys Lys Ala Gln  
305 310

<210> 362

<211> 347

<212> PRT

<213> Homo sapiens

<400> 362

Met Gly Asn Trp Thr Ala Ala Val Thr Glu Phe Val Leu Leu Gly Phe  
1 5 10 15

Ser Leu Ser Arg Glu Val Glu Leu Leu Leu Leu Val Leu Leu Leu Pro  
20 25 30

Thr Phe Leu Leu Thr Leu Leu Gly Asn Leu Leu Ile Ile Ser Thr Val  
35 40 45

Leu Ser Cys Ser Arg Leu His Thr Pro Met Tyr Phe Phe Leu Cys Asn  
50 55 60

Leu Ser Ile Leu Asp Ile Leu Phe Thr Ser Val Ile Ser Pro Lys Val  
65 70 75 80

Leu Ala Asn Leu Gly Ser Arg Asp Lys Thr Ile Ser Phe Ala Gly Cys  
85 90 95

Ile Thr Gln Cys Tyr Phe Tyr Phe Phe Leu Gly Thr Val Glu Phe Leu  
100 105 110

Leu Leu Thr Val Met Ser Tyr Asp Arg Tyr Ala Thr Ile Cys Cys Pro  
115 120 125

Leu Arg Tyr Thr Thr Ile Met Arg Pro Ser Val Cys Ile Gly Thr Val

130	135	140
Val Phe Ser Trp Val Gly Gly Phe Leu Ser Val Leu Phe Pro Thr Ile		
145	150	155 160
Leu Ile Ser Gln Leu Pro Phe Cys Gly Ser Asn Ile Ile Asn His Phe		
165	170	175
Phe Cys Asp Ser Gly Pro Leu Leu Ala Leu Ala Cys Ala Asp Thr Thr		
180	185	190
Ala Ile Glu Leu Met Asp Phe Met Leu Ser Ser Met Val Ile Leu Cys		
195	200	205
Cys Ile Val Leu Val Ala Tyr Ser Tyr Thr Tyr Ile Ile Leu Thr Ile		
210	215	220
Val Arg Ile Pro Ser Ala Ser Gly Arg Lys Lys Ala Phe Asn Thr Cys		
225	230	235 240
Ala Ser His Leu Thr Ile Val Ile Ile Pro Ser Gly Ile Thr Val Phe		
245	250	255
Ile Tyr Val Thr Pro Ser Gln Lys Glu Tyr Leu Glu Ile Asn Lys Ile		
260	265	270
Pro Leu Val Leu Ser Ser Val Val Thr Pro Phe Leu Asn Pro Phe Ile		
275	280	285
Tyr Thr Leu Arg Asn Asp Thr Val Gln Gly Val Leu Arg Asp Val Trp		
290	295	300
Val Arg Val Arg Gly Val Phe Glu Lys Arg Met Arg Ala Val Leu Arg		
305	310	315 320
Ser Arg Leu Ser Ser Asn Lys Asp His Gln Gly Arg Ala Cys Ser Ser		
325	330	335
Pro Pro Cys Val Tyr Ser Val Lys Leu Gln Cys		
340	345	

<210> 363

<211> 246

<212> PRT

<213> Homo sapiens

<400> 363

Ile	Ile	Ser	Phe	Ile	Cys	Leu	Asp	Ser	Arg	Leu	His	Ser	Pro	Met	Tyr	1	5	10	15
Phe	Phe	Leu	Cys	Asn	Phe	Ser	Leu	Met	Glu	Met	Val	Val	Thr	Ser	Thr	20	25	30	
Val	Val	His	Arg	Met	Leu	Ala	Asp	Leu	Leu	Ser	Thr	His	Lys	Thr	Met	35	40	45	
Ser	Leu	Ala	Lys	Cys	Leu	Thr	Gln	Ser	Phe	Phe	Tyr	Phe	Ser	Leu	Gly	50	55	60	
Ser	Ala	Asn	Phe	Leu	Ile	Leu	Met	Val	Met	Ala	Phe	Asp	Arg	Tyr	Val	65	70	75	80
Ala	Ile	Cys	His	Pro	Leu	Arg	Tyr	Pro	Thr	Ile	Thr	Asn	Gly	Pro	Val	85	90	95	
Cys	Val	Lys	Leu	Val	Val	Ala	Cys	Trp	Val	Val	Gly	Phe	Leu	Ser	Ile	100	105	110	
Val	Ser	Pro	Thr	Leu	Gln	Lys	Thr	Arg	Leu	Trp	Phe	Cys	Gly	Pro	Asn	115	120	125	
Ile	Ile	Gly	His	Tyr	Phe	Cys	Asp	Ser	Ala	Pro	Leu	Leu	Lys	Leu	Ala	130	135	140	
Cys	Ser	Asp	Thr	Arg	His	Ile	Glu	Arg	Met	Asp	Leu	Phe	Leu	Ser	Leu	145	150	155	160
Leu	Phe	Val	Leu	Thr	Thr	Met	Leu	Leu	Ile	Ile	Leu	Ser	Tyr	Ile	Leu	165	170	175	
Ile	Val	Ala	Ala	Val	Leu	His	Ile	Pro	Ser	Ser	Ser	Gly	Cys	Gln	Lys	180	185	190	
Ala	Phe	Ser	Thr	Cys	Ala	Pro	His	Leu	Thr	Val	Val	Val	Leu	Gly	Tyr	195	200	205	
Gly	Ser	Ala	Ile	Phe	Ile	Tyr	Val	Arg	Pro	Gly	Lys	Gly	His	Ser	Thr	210	215	220	
Tyr	Leu	Asn	Lys	Ala	Val	Ala	Met	Val	Thr	Ala	Met	Val	Thr	Pro	Phe	225	230	235	240
Leu	Asn	Pro	Phe	Ile	Phe	245													

<210> 364

<211> 250

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 7tm\_1, 7

transmembrane receptor domain sequence

<400> 364

Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg Thr Pro Thr Asn  
1 5 10 15

Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu Phe Leu Leu Thr  
20 25 30

Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly Asp Trp Val Phe  
35 40 45

Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe Val Val Asn Gly  
50 55 60

Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile Asp Arg Tyr Leu  
65 70 75 80

Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg Thr Pro Arg Arg  
85 90 95

Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala Leu Leu Leu Ser  
100 105 110

Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val Glu Glu Gly Asn  
115 120 125

Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser Val Lys Arg Ser  
130 135 140

Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Val Leu Pro Leu Leu Val  
145 150 155 160

Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu Arg Lys Arg Ala  
165 170 175

Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser Glu Arg Lys Ala  
180 185 190

Ala Lys Met Leu Leu Val Val Val Val Val Phe Val Leu Cys Trp Leu



195	200	205
Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys Leu Leu Ser Ile		
210	215	220
Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu Trp Leu Ala Tyr		
225	230	235 240
Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr		
245	250	

<210> 365  
 <211> 559  
 <212> PRT  
 <213> Homo sapiens

<400> 365
Met Ala Pro Thr Leu Gln Gln Ala Tyr Arg Arg Arg Trp Trp Met Ala
1 5 10 15
Cys Thr Ala Val Leu Glu Asn Leu Phe Phe Ser Ala Val Leu Leu Gly
20 25 30
Trp Gly Ser Leu Leu Ile Ile Leu Lys Asn Glu Gly Phe Tyr Ser Ser
35 40 45
Thr Cys Pro Ala Glu Ser Ser Thr Asn Thr Thr Gln Asp Glu Gln Arg
50 55 60
Arg Trp Pro Gly Cys Asp Gln Gln Asp Glu Met Leu Asn Leu Gly Phe
65 70 75 80
Thr Ile Gly Ser Phe Val Leu Ser Ala Thr Thr Leu Pro Leu Gly Ile
85 90 95
Leu Met Asp Arg Phe Gly Pro Arg Pro Val Arg Leu Val Gly Ser Ala
100 105 110
Cys Phe Thr Ala Ser Cys Thr Leu Met Ala Leu Ala Ser Arg Asp Val
115 120 125
Glu Ala Leu Ser Pro Leu Ile Phe Leu Ala Leu Ser Leu Asn Gly Phe
130 135 140
Gly Gly Ile Cys Leu Thr Phe Thr Ser Leu Thr Leu Pro Asn Met Phe
145 150 155 160

Gly	Asn	Leu	Arg	Ser	Thr	Leu	Met	Ala	Leu	Met	Ile	Gly	Ser	Tyr	Ala	
				165					170					175		
Ser	Ser	Ala	Ile	Thr	Phe	Pro	Gly	Ile	Lys	Leu	Ile	Tyr	Asp	Ala	Gly	
			180					185					190			
Val	Ala	Phe	Val	Val	Ile	Met	Phe	Thr	Trp	Ser	Gly	Leu	Ala	Cys	Leu	
		195					200					205				
Ile	Phe	Leu	Asn	Cys	Thr	Leu	Asn	Trp	Pro	Ile	Glu	Ala	Phe	Pro	Ala	
	210					215					220					
Pro	Glu	Glu	Val	Asn	Tyr	Thr	Lys	Lys	Ile	Lys	Leu	Ser	Gly	Leu	Ala	
225					230					235					240	
Leu	Asp	His	Lys	Val	Thr	Gly	Asp	Leu	Phe	Tyr	Thr	His	Val	Thr	Thr	
			245					250					255			
Met	Gly	Gln	Arg	Leu	Ser	Gln	Lys	Ala	Pro	Ser	Leu	Glu	Asp	Gly	Ser	
			260					265					270			
Asp	Ala	Phe	Met	Ser	Pro	Gln	Asp	Val	Arg	Gly	Thr	Ser	Glu	Asn	Leu	
		275					280					285				
Pro	Glu	Arg	Ser	Val	Pro	Leu	Arg	Lys	Ser	Leu	Cys	Ser	Pro	Thr	Phe	
	290					295					300					
Leu	Trp	Ser	Leu	Leu	Thr	Met	Gly	Met	Thr	Gln	Leu	Arg	Ile	Ile	Phe	
305					310					315					320	
Tyr	Met	Ala	Ala	Val	Asn	Lys	Met	Leu	Glu	Tyr	Leu	Val	Thr	Gly	Gly	
				325					330					335		
Gln	Glu	His	Glu	Thr	Asn	Glu	Gln	Gln	Gln	Lys	Val	Ala	Glu	Thr	Val	
			340					345					350			
Gly	Phe	Tyr	Ser	Ser	Val	Phe	Gly	Ala	Met	Gln	Leu	Leu	Cys	Leu	Leu	
		355					360					365				
Thr	Cys	Pro	Leu	Ile	Gly	Tyr	Ile	Met	Asp	Trp	Arg	Ile	Lys	Asp	Cys	
	370					375					380					
Val	Asp	Ala	Pro	Thr	Gln	Gly	Thr	Val	Leu	Gly	Asp	Ala	Arg	Asp	Gly	
385					390					395					400	
Val	Ala	Thr	Lys	Ser	Ile	Arg	Pro	Arg	Tyr	Cys	Lys	Ile	Gln	Lys	Leu	
				405					410					415		

Thr Asn Ala Ile Ser Ala Phe Thr Leu Thr Asn Leu Leu Leu Val Gly  
420 425 430

Phe Gly Ile Thr Cys Leu Ile Asn Asn Leu His Leu Gln Phe Val Thr  
435 440 445

Phe Val Leu His Thr Ile Val Arg Gly Phe Phe His Ser Ala Cys Gly  
450 455 460

Ser Leu Tyr Ala Ala Val Phe Pro Ser Asn His Phe Gly Thr Leu Thr  
465 470 475 480

Gly Leu Gln Ser Leu Ile Ser Ala Val Phe Ala Leu Leu Gln Gln Pro  
485 490 495

Leu Phe Met Ala Met Val Gly Pro Leu Lys Gly Glu Pro Phe Trp Val  
500 505 510

Asn Leu Gly Leu Leu Leu Phe Ser Leu Leu Gly Phe Leu Leu Pro Ser  
515 520 525

Tyr Leu Phe Tyr Tyr Arg Ala Arg Leu Gln Gln Glu Tyr Ala Ala Asn  
530 535 540

Gly Met Gly Pro Leu Lys Val Leu Ser Gly Ser Glu Val Thr Ala  
545 550 555

<210> 366

<211> 654

<212> PRT

<213> Mus musculus

<400> 366

Met Pro Trp Leu Pro Gly Phe Thr Tyr Leu Trp Arg Gln Asp Gly Ser  
1 5 10 15

Gln Ile His Cys Phe Phe Arg Gly Arg Arg Gly Glu Thr Gly Gly  
20 25 30

Ser Glu Ala Arg Trp Val Trp His Ala Gly Lys Thr Pro Arg Val Asp  
35 40 45

Ala Ile Trp Asn Trp Asp Pro Gly Ser Gln Glu Ile Arg Ser Val Glu  
50 55 60

Ala Pro Gly Arg Leu Cys Val Thr Pro Gly Val Lys Ser Cys Gly Arg  
65 70 75 80

Gln	Val	Cys	Arg	Gly	Gln	Ser	Leu	Gly	His	His	Gly	Ser	His	Ala	Glu	85	90	95	
Ala	Gly	Val	Pro	Gln	Arg	Trp	Trp	Met	Ala	Cys	Thr	Ala	Val	Val	Glu	100	105	110	
Asn	Leu	Phe	Phe	Ser	Ala	Val	Leu	Leu	Gly	Trp	Ala	Ser	Leu	Leu	Ile	115	120	125	
Met	Leu	Lys	Lys	Glu	Gly	Phe	Tyr	Ser	Ser	Leu	Cys	Pro	Ala	Glu	Asn	130	135	140	
Arg	Thr	Asn	Thr	Thr	Gln	Asp	Glu	Gln	His	Gln	Trp	Thr	Ser	Cys	Asp	145	150	155	160
Gln	Gln	Glu	Lys	Met	Leu	Asn	Leu	Gly	Phe	Thr	Ile	Gly	Ser	Phe	Leu	165	170	175	
Leu	Ser	Ala	Thr	Thr	Leu	Pro	Leu	Gly	Ile	Leu	Met	Asp	Arg	Phe	Gly	180	185	190	
Pro	Arg	Pro	Leu	Arg	Leu	Val	Gly	Ser	Ala	Cys	Phe	Ala	Ala	Ser	Cys	195	200	205	
Thr	Leu	Met	Ala	Leu	Ala	Ser	Arg	Asp	Thr	Glu	Val	Leu	Ser	Pro	Leu	210	215	220	
Ile	Phe	Leu	Ala	Leu	Ser	Leu	Asn	Gly	Phe	Ala	Gly	Ile	Cys	Leu	Thr	225	230	235	240
Phe	Thr	Ser	Leu	Thr	Leu	Pro	Asn	Met	Phe	Gly	Asn	Leu	Arg	Ser	Thr	245	250	255	
Phe	Met	Ala	Leu	Met	Ile	Gly	Ser	Tyr	Ala	Ser	Ser	Ala	Ile	Thr	Phe	260	265	270	
Pro	Gly	Ile	Lys	Leu	Ile	Tyr	Asp	Ala	Gly	Val	Pro	Phe	Thr	Val	Ile	275	280	285	
Met	Phe	Thr	Trp	Ser	Gly	Leu	Ala	Cys	Leu	Ile	Phe	Leu	Asn	Cys	Ala	290	295	300	
Leu	Asn	Trp	Pro	Ala	Glu	Ala	Phe	Pro	Ala	Pro	Glu	Glu	Val	Asp	Tyr	305	310	315	320
Thr	Lys	Lys	Ile	Lys	Leu	Ile	Gly	Leu	Ala	Leu	Asp	His	Lys	Val	Thr	325	330	335	



Phe Met Ala Met Val Gly Pro Leu His Gly Asp Pro Phe Trp Val Asn  
595 600 605

Leu Gly Leu Leu Leu Leu Ser Phe Leu Gly Phe Leu Leu Pro Ser Tyr  
610 615 620

Leu Tyr Tyr Tyr Arg Ser Arg Leu Gln Arg Glu Tyr Ala Thr Asn Leu  
625 630 635 640

Val Asp Pro Gln Lys Val Leu Asn Thr Ser Lys Val Ala Thr  
645 650

<210> 367

<211> 401

<212> PRT

<213> Homo sapiens

<400> 367

Met Phe Gly Asn Leu Arg Ser Thr Leu Met Ala Leu Met Ile Gly Ser  
1 5 10 15

Tyr Ala Ser Ser Ala Ile Thr Phe Pro Gly Ile Lys Leu Ile Tyr Asp  
20 25 30

Ala Gly Val Ala Phe Val Val Ile Met Phe Thr Trp Ser Gly Leu Ala  
35 40 45

Cys Leu Ile Phe Leu Asn Cys Thr Leu Asn Trp Pro Ile Glu Ala Phe  
50 55 60

Pro Ala Pro Glu Glu Val Asn Tyr Thr Lys Lys Ile Lys Leu Ser Gly  
65 70 75 80

Leu Ala Leu Asp His Lys Val Thr Gly Asp Leu Phe Tyr Thr His Val  
85 90 95

Thr Thr Met Gly Gln Arg Leu Ser Gln Lys Ala Pro Ser Leu Glu Asp  
100 105 110

Gly Ser Asp Ala Phe Met Ser Pro Gln Asp Val Arg Gly Thr Ser Glu  
115 120 125

Asn Leu Pro Glu Arg Ser Val Pro Leu Arg Lys Ser Leu Cys Ser Pro  
130 135 140

Thr Phe Leu Trp Ser Leu Leu Thr Met Gly Met Thr Gln Leu Arg Ile

145		150		155		160
Ile Phe Tyr Met	Ala Ala Val Asn Lys Met	Leu Glu Tyr Leu Val Thr				
	165	170		175		
Gly Gly Gln Glu His Glu Thr Asn Glu Gln Gln Lys Val Ala Glu						
	180	185		190		
Thr Val Gly Phe Tyr Ser Ser Val Phe Gly Ala Met Gln Leu Leu Cys						
	195	200		205		
Leu Leu Thr Cys Pro Leu Ile Gly Tyr Ile Met Asp Trp Arg Ile Lys						
	210	215		220		
Asp Cys Val Asp Ala Pro Thr Gln Gly Thr Val Leu Gly Asp Ala Arg						
	225	230		235		240
Asp Gly Val Ala Thr Lys Ser Ile Arg Pro Arg Tyr Cys Lys Ile Gln						
	245	250		255		
Lys Leu Thr Asn Ala Ile Ser Ala Phe Thr Leu Thr Asn Leu Leu Leu						
	260	265		270		
Val Gly Phe Gly Ile Thr Cys Leu Ile Asn Asn Leu His Leu Gln Phe						
	275	280		285		
Val Thr Phe Val Leu His Thr Ile Val Arg Gly Phe Phe His Ser Ala						
	290	295		300		
Cys Gly Ser Leu Tyr Ala Ala Val Phe Pro Ser Asn His Phe Gly Thr						
	305	310		315		320
Leu Thr Gly Leu Gln Ser Leu Ile Ser Ala Val Phe Ala Leu Leu Gln						
	325	330		335		
Gln Pro Leu Phe Met Ala Met Val Gly Pro Leu Lys Gly Glu Pro Phe						
	340	345		350		
Trp Val Asn Leu Gly Leu Leu Leu Phe Ser Leu Leu Gly Phe Leu Leu						
	355	360		365		
Pro Ser Tyr Leu Phe Tyr Tyr Arg Ala Arg Leu Gln Gln Glu Tyr Ala						
	370	375		380		
Ala Asn Gly Met Gly Pro Leu Lys Val Leu Ser Gly Ser Glu Val Thr						
	385	390		395		400
Ala						

<210> 368

<211> 489

<212> PRT

<213> Homo sapiens

<400> 368

Met	Ala	Pro	Thr	Leu	Ala	Thr	Ala	His	Arg	Arg	Arg	Trp	Trp	Met	Ala
1				5					10					15	

Cys	Thr	Pro	Val	Leu	Glu	Asn	Leu	Leu	Phe	Ser	Ala	Val	Leu	Leu	Gly
			20					25					30		

Trp	Gly	Ser	Leu	Leu	Ile	Met	Leu	Lys	Ser	Glu	Gly	Phe	Tyr	Ser	Tyr
		35					40					45			

Leu	Cys	Thr	Glu	Pro	Glu	Asn	Val	Thr	Asn	Gly	Thr	Val	Gly	Gly	Thr
	50					55					60				

Ala	Glu	Pro	Gly	His	Glu	Glu	Val	Ser	Trp	Met	Asn	Gly	Trp	Leu	Ser
65					70					75					80

Cys	Gln	Ala	Gln	Asp	Glu	Met	Leu	Asn	Leu	Ala	Phe	Thr	Val	Gly	Ser
			85					90						95	

Phe	Leu	Leu	Ser	Ala	Ile	Thr	Leu	Pro	Leu	Gly	Ile	Val	Met	Asp	Lys
			100					105					110		

Tyr	Gly	Pro	Arg	Lys	Leu	Arg	Leu	Leu	Gly	Ser	Ala	Cys	Phe	Ala	Val
		115					120					125			

Ser	Cys	Leu	Leu	Ile	Ala	Tyr	Gly	Ala	Ser	Lys	Pro	Asn	Ala	Leu	Ser
	130					135					140				

Val	Leu	Ile	Phe	Ile	Ala	Leu	Ala	Leu	Asn	Gly	Phe	Gly	Gly	Met	Cys
145					150					155					160

Met	Thr	Phe	Thr	Ser	Leu	Thr	Leu	Pro	Asn	Met	Phe	Gly	Asp	Leu	Arg
				165					170					175	

Ser	Thr	Phe	Ile	Ala	Leu	Met	Ile	Gly	Ser	Tyr	Ala	Ser	Ser	Ala	Val
			180					185					190		

Thr	Phe	Pro	Gly	Ile	Lys	Leu	Ile	Tyr	Asp	Ala	Gly	Val	Ser	Phe	Ile
		195					200					205			



Val	Val	Leu	Val	Val	Trp	Ala	Gly	Cys	Ser	Gly	Leu	Val	Phe	Leu	Asn			
	210						215					220						
Cys	Phe	Phe	Asn	Trp	Pro	Leu	Glu	Pro	Phe	Pro	Gly	Pro	Glu	Asp	Met			
225					230					235					240			
Asp	Tyr	Ser	Val	Lys	Ile	Lys	Phe	Ser	Trp	Leu	Gly	Phe	Asp	His	Lys			
				245					250					255				
Ile	Thr	Gly	Lys	Gln	Phe	Tyr	Lys	Gln	Val	Thr	Thr	Val	Gly	Arg	Arg			
			260					265					270					
Leu	Ser	Val	Gly	Ser	Ser	Met	Arg	Ser	Ala	Lys	Glu	Gln	Val	Ala	Leu			
		275					280					285						
Gln	Glu	Gly	His	Lys	Leu	Cys	Leu	Ser	Thr	Val	Asp	Leu	Glu	Val	Lys			
	290					295					300							
Cys	Gln	Pro	Asp	Ala	Ala	Val	Ala	Pro	Ser	Phe	Met	His	Ser	Val	Phe			
305					310					315					320			
Ser	Pro	Ile	Leu	Leu	Leu	Ser	Leu	Val	Thr	Met	Cys	Val	Thr	Gln	Leu			
				325				330						335				
Arg	Leu	Ile	Phe	Tyr	Met	Gly	Ala	Met	Asn	Asn	Ile	Leu	Lys	Phe	Leu			
			340					345					350					
Val	Ser	Gly	Asp	Gln	Lys	Thr	Val	Gly	Leu	Tyr	Thr	Ser	Ile	Phe	Gly			
		355					360					365						
Val	Leu	Gln	Leu	Leu	Cys	Leu	Leu	Thr	Ala	Pro	Val	Ile	Gly	Tyr	Ile			
	370					375					380							
Met	Asp	Trp	Arg	Leu	Lys	Glu	Cys	Glu	Asp	Ala	Ser	Glu	Glu	Pro	Glu			
385					390					395					400			
Glu	Lys	Asp	Ala	Asn	Gln	Cys	Val	Gly	Arg	Ala	Gly	Ala	Pro	Ala	Pro			
				405					410					415				
Ser	Pro	Gln	Pro	Leu	Gln	Lys	Asp	Pro	Arg	Ala	Ala	Cys	Gln	Ala	Gln			
			420					425					430					
Gly	Gly	Trp	Asp	Arg	Gly	Arg	Glu	Gln	Cys	Thr	Pro	Ala	Pro	Pro	Gly			
		435					440					445						
Ala	Leu	Arg	Glu	Ala	His	Ser	Phe	Ser	Ser	Ala	Cys	Val	Ser	Thr	Ala			
	450					455					460							

Pro Leu Phe Met Glu Ile Val Trp Asn Ala Met Glu Met Leu Glu Phe  
 465 470 475 480

Glu Ala Arg Cys Gly Asp Ser Cys Leu  
 485

<210> 369

<211> 373

<212> PRT

<213> Homo sapiens

<400> 369

Ile Lys Leu Ile Tyr Asp Ala Gly Val Ser Phe Ile Val Val Leu Val  
 1 5 10 15

Val Trp Ala Gly Cys Ser Gly Leu Val Phe Leu Asn Cys Phe Phe Asn  
 20 25 30

Trp Pro Leu Glu Pro Phe Pro Gly Pro Glu Asp Met Asp Tyr Ser Val  
 35 40 45

Lys Ile Lys Phe Ser Trp Leu Gly Phe Asp His Lys Ile Thr Gly Lys  
 50 55 60

Gln Phe Tyr Lys Gln Val Thr Thr Val Gly Arg Arg Leu Ser Val Gly  
 65 70 75 80

Ser Ser Met Arg Ser Ala Lys Glu Gln Val Ala Leu Gln Glu Gly His  
 85 90 95

Lys Leu Cys Leu Ser Thr Val Asp Leu Glu Val Lys Cys Gln Pro Asp  
 100 105 110

Ala Ala Val Val Pro Ser Phe Met His Ser Val Phe Ser Pro Ile Leu  
 115 120 125

Leu Leu Ser Leu Val Thr Met Cys Val Thr Gln Leu Arg Leu Ile Phe  
 130 135 140

Tyr Met Gly Ala Met Asn Asn Ile Leu Lys Phe Leu Val Ser Gly Asp  
 145 150 155 160

Gln Lys Thr Val Gly Leu Tyr Thr Ser Ile Phe Gly Val Leu Gln Leu  
 165 170 175

Leu Cys Leu Leu Thr Ala Pro Val Ile Gly Tyr Ile Met Asp Trp Arg  
 180 185 190

Leu Lys Glu Cys Glu Asp Ala Ser Glu Glu Pro Glu Glu Lys Asp Ala  
 195 200 205

Asn Gln Gly Glu Lys Lys Lys Lys Lys Arg Asp Arg Gln Ile Gln Lys  
 210 215 220

Ile Thr Asn Ala Met Arg Ala Phe Ala Phe Thr Asn Leu Leu Leu Val  
 225 230 235 240

Gly Phe Gly Val Thr Cys Leu Ile Pro Asn Leu Pro Leu Gln Ile Leu  
 245 250 255

Ser Phe Ile Leu His Thr Ile Val Arg Gly Phe Ile His Ser Ala Val  
 260 265 270

Gly Gly Leu Tyr Ala Ala Val Tyr Pro Ser Thr Gln Phe Gly Ser Leu  
 275 280 285

Thr Gly Leu Gln Ser Leu Ile Ser Ala Leu Phe Ala Leu Leu Gln Gln  
 290 295 300

Pro Leu Phe Leu Ala Met Met Gly Pro Leu Gln Gly Asp Pro Leu Trp  
 305 310 315 320

Val Asn Val Gly Leu Leu Leu Leu Ser Leu Leu Gly Phe Cys Leu Pro  
 325 330 335

Leu Tyr Leu Ile Cys Tyr Arg Arg Gln Leu Glu Arg Gln Leu Gln Gln  
 340 345 350

Arg Gln Glu Asp Asp Lys Leu Phe Leu Lys Ile Asn Gly Ser Ser Asn  
 355 360 365

Gln Glu Ala Phe Val  
 370

<210> 370

<211> 125

<212> PRT

<213> Homo sapiens

<400> 370

Met Ala Gly Pro Ser Leu Ala Cys Cys Leu Leu Gly Leu Leu Ala Leu  
 1 5 10 15

Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala

20	25	30
Ala Pro Asp Leu Asp Val Arg Lys Cys Leu Pro Cys Gly Pro Gly Gly		
35	40	45
Lys Gly Arg Cys Phe Gly Pro Asn Ile Cys Cys Ala Glu Glu Leu Gly		
50	55	60
Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln Glu Glu Asn Tyr		
65	70	75
Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Ala Cys Gly Ser Gly Gly		
85	90	95
Arg Cys Ala Val Leu Gly Leu Cys Cys Ser Pro Asp Gly Cys His Ala		
100	105	110
Asp Pro Ala Cys Asp Ala Glu Ala Thr Phe Ser Gln Arg		
115	120	125

<210> 371

<211> 124

<212> PRT

<213> Homo sapiens

<400> 371

Met Ala Gly Pro Ser Leu Ala Cys Cys Leu Leu Gly Leu Leu Ala Leu
1 5 10 15
Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala
20 25 30
Ala Pro Asp Leu Asp Val Arg Lys Cys Leu Pro Cys Gly Pro Gly Gly
35 40 45
Lys Gly Arg Cys Phe Gly Pro Asn Ile Cys Cys Ala Glu Glu Leu Gly
50 55 60
Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln Glu Glu Asn Tyr
65 70 75 80
Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Ala Cys Gly Ser Gly Gly
85 90 95
Arg Cys Ala Leu Gly Leu Cys Cys Ser Pro Asp Gly Cys His Ala Asp
100 105 110

Pro Ala Cys Asp Ala Glu Ala Thr Phe Ser Gln Arg  
 115 120

<210> 372  
 <211> 125  
 <212> PRT  
 <213> Sus scrofa

<400> 372  
 Met Ala Gly Pro Ser Leu Ala Cys Cys Leu Leu Gly Leu Leu Ala Leu  
 1 5 10 15

Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala  
 20 25 30

Val Leu Asp Leu Asp Val Arg Lys Cys Leu Pro Cys Gly Pro Gly Gly  
 35 40 45

Lys Gly Arg Cys Phe Gly Pro Ser Ile Cys Cys Gly Asp Glu Leu Gly  
 50 55 60

Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln Glu Glu Asn Tyr  
 65 70 75 80

Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Pro Cys Gly Ser Glu Gly  
 85 90 95

Arg Cys Ala Ala Ala Gly Ile Cys Cys Asn Pro Asp Gly Cys Arg Phe  
 100 105 110

Asp Pro Ala Cys Asp Pro Glu Ala Thr Phe Ser Gln Arg  
 115 120 125

<210> 373  
 <211> 125  
 <212> PRT  
 <213> Ovis aries

<400> 373  
 Met Ala Gly Ser Ser Leu Ala Cys Cys Leu Leu Gly Leu Leu Ala Leu  
 1 5 10 15

Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala  
 20 25 30

Val Leu Asp Leu Asp Val Arg Thr Cys Leu Pro Cys Gly Pro Gly Gly

35	40	45
Lys Gly Arg Cys Phe Gly Pro Ser Ile Cys Cys Gly Asp Glu Leu Gly		
50	55	60
Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Arg Glu Glu Asn Tyr		
65	70	75
80		
Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Pro Cys Gly Ser Gly Gly		
85	90	95
100	105	110
Arg Cys Ala Ala Ala Gly Ile Cys Cys Ser Pro Asp Gly Cys His Ala		
115	120	125

<210> 374  
 <211> 125  
 <212> PRT  
 <213> Bos taurus

<400> 374
Met Ala Gly Ser Ser Leu Ala Cys Cys Leu Leu Gly Leu Leu Ala Leu
1 5 10 15
Thr Ser Ala Cys Tyr Ile Gln Asn Cys Pro Leu Gly Gly Lys Arg Ala
20 25 30
Val Leu Asp Leu Asp Val Arg Thr Cys Leu Pro Cys Gly Pro Gly Gly
35 40 45
Lys Gly Arg Cys Phe Gly Pro Ser Ile Cys Cys Gly Asp Glu Leu Gly
50 55 60
Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln Glu Glu Asn Tyr
65 70 75 80
Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Pro Cys Gly Ser Gly Gly
85 90 95
Arg Cys Ala Ala Ala Gly Ile Cys Cys Ser Pro Asp Gly Cys His Glu
100 105 110
Asp Pro Ala Cys Asp Pro Glu Ala Ala Phe Ser Gln His
115 120 125

<210> 375  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 375  
Glu Glu Leu Gly Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln  
1 5 10 15  
Glu Glu Asn Tyr Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Ala Cys  
20 25 30  
Gly Ser Gly Gly Arg Cys Ala Val Leu Gly Leu Cys Cys Ser Pro Asp  
35 40 45  
Gly Cys His Ala Asp Pro Ala Cys  
50 55

<210> 376  
<211> 57  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Neurohypophysial hormones domain sequence

<400> 376  
Glu Glu Leu Gly Cys Tyr Val Gly Thr Pro Glu Thr Ala Arg Cys Gln  
1 5 10 15  
Glu Glu Asn Tyr Leu Pro Ser Pro Cys Glu Ala Gly Gly Lys Pro Cys  
20 25 30  
Gly Ser Asp Ala Gly Arg Cys Ala Ala Pro Gly Val Cys Cys Asp Ser  
35 40 45  
Glu Ser Cys Val Val Asp Pro Glu Cys  
50 55

<210> 377  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 377

Glu Glu Leu Gly Cys Phe Val Gly Thr Ala Glu Ala Leu Arg Cys Gln  
1 5 10 15

Glu Glu Asn Tyr Leu Pro Ser Pro Cys Gln Ser Gly Gln Lys Ala Cys  
20 25 30

Gly Ser Gly Gly Arg Cys Ala Val Leu Gly Leu Cys Cys Ser Pro Asp  
35 40 45

Gly Cys His Ala Asp Pro Ala Cys  
50 55

<210> 378

<211> 57

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

Neurohypophysial hormones domain sequence

<400> 378

Glu Glu Leu Gly Cys Tyr Val Gly Thr Pro Glu Thr Ala Arg Cys Gln  
1 5 10 15

Glu Glu Asn Tyr Leu Pro Ser Pro Cys Glu Ser Gly Gly Arg Pro Cys  
20 25 30

Gly Ser Asp Gly Gly Arg Cys Ala Ala Pro Gly Ile Cys Cys Asp Ser  
35 40 45

Glu Ser Cys Ala Ala Asp Pro Ser Cys  
50 55

<210> 379

<211> 158

<212> PRT

<213> Homo sapiens

<400> 379

Met Ser Asp Lys Ser Asn Met Asp Glu Ile Glu Lys Phe Ser Lys Ser  
1 5 10 15

Lys Leu Lys Lys Thr Glu Met Gln Glu Lys Asn Pro Gln Pro Ser Lys  
20 25 30



Glu Trp Ile Glu Gln Glu Lys Gln Ala Gly Phe Cys Ala Met Ala Ala  
35 40 45

Asn Ser Ser Phe Leu Gly Gly Val His Gly Leu Phe Leu Val Trp Val  
50 55 60

Ala Leu Arg Val Leu Gly Asp Arg Pro Phe Lys Cys Thr Phe Met Ser  
65 70 75 80

Leu Thr Leu His Tyr Pro Arg Cys Arg Leu Glu Thr Gly Ile Gln Gly  
85 90 95

Ala Phe Gly Lys Pro Gln Gly Thr Val Ala Arg Val His Ile Gly Gln  
100 105 110

Val Lys Ser Ile Cys Thr Lys Leu Gln Asn Lys Glu His Val Ile Glu  
115 120 125

Ala Pro Cys Arg Ala Lys Phe Lys Phe Pro Gly His Gln Lys Ile His  
130 135 140

Ile Ser Lys Lys Trp Gly Phe Thr Lys Phe Asn Val Asp Glu  
145 150 155

<210> 380

<211> 56

<212> PRT

<213> Rattus norvegicus

<400> 380

Leu Phe Ala Gln Leu Ala Gln Leu Leu Pro Ala Thr Met Ser Asp Lys  
1 5 10 15

Pro Asp Met Ala Glu Ile Glu Lys Phe Asp Lys Ser Lys Leu Lys Lys  
20 25 30

Thr Glu Thr Gln Glu Lys Asn Pro Leu Pro Ser Lys Glu Thr Ile Glu  
35 40 45

Gln Glu Lys Gln Ala Gly Glu Ser  
50 55

<210> 381

<211> 50

<212> PRT

<213> Mus musculus

<400> 381

Met Leu Leu Pro Ala Thr Met Ser Asp Lys Pro Asp Met Ala Glu Ile  
1 5 10 15

Glu Lys Phe Asp Lys Ser Lys Leu Lys Lys Thr Glu Thr Gln Glu Lys  
20 25 30

Asn Pro Leu Pro Ser Lys Glu Thr Ile Glu Gln Glu Lys Gln Ala Gly  
35 40 45

Glu Ser  
50

<210> 382

<211> 43

<212> PRT

<213> Oryzctolagus cuniculus

<400> 382

Ala Asp Lys Pro Asp Met Ala Glu Ile Glu Lys Phe Asp Lys Ser Lys  
1 5 10 15

Leu Lys Lys Thr Glu Thr Gln Glu Lys Asn Pro Leu Pro Ser Lys Glu  
20 25 30

Thr Ile Glu Gln Glu Lys Gln Ala Gly Glu Ser  
35 40

<210> 383

<211> 44

<212> PRT

<213> Mus musculus

<400> 383

Met Ser Asp Lys Pro Asp Met Ala Glu Ile Glu Lys Phe Asp Lys Ser  
1 5 10 15

Lys Leu Lys Lys Thr Glu Thr Gln Glu Lys Asn Pro Leu Pro Ser Lys  
20 25 30

Glu Thr Ile Glu Gln Glu Lys Gln Ala Gly Glu Ser  
35 40

<210> 384  
<211> 36  
<212> PRT  
<213> Homo sapiens

<400> 384  
Met Asp Glu Ile Glu Lys Phe Ser Lys Ser Lys Leu Lys Lys Thr Glu  
1 5 10 15  
Met Gln Glu Lys Asn Pro Gln Pro Ser Lys Glu Trp Ile Glu Gln Glu  
20 25 30  
Lys Gln Ala Gly  
35

<210> 385  
<211> 36  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Thymosin beta  
actin-binding motif sequence

<400> 385  
Thr Asp Glu Ile Glu Asn Phe Asp Ser Glu Asn Leu Lys Lys Thr Glu  
1 5 10 15  
Thr Ile Glu Lys Asn Val Leu Pro Ser Lys Glu Asp Ile Glu Gln Glu  
20 25 30  
Lys Gln Leu Gln  
35

<210> 386  
<211> 41  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Thymosin  
beta-4 family domain sequence

<400> 386  
Ser Asp Lys Pro Asp Leu Glu Glu Ile Ala Ser Phe Asp Lys Ala Lys  
1 5 10 15

Leu Lys Lys Thr Glu Thr Gln Glu Lys Asn Pro Leu Pro Thr Lys Glu  
20 25 30

Thr Ile Glu Gln Glu Lys Gln Ala Glu  
35 40

<210> 387

<211> 36

<212> PRT

<213> Homo sapiens

<400> 387

Met Asp Glu Ile Glu Lys Phe Ser Lys Ser Lys Leu Lys Lys Thr Glu  
1 5 10 15

Met Gln Glu Lys Asn Pro Gln Pro Ser Lys Glu Trp Ile Glu Gln Glu  
20 25 30

Lys Gln Ala Gly  
35

<210> 388

<211> 132

<212> PRT

<213> Mus musculus

<400> 388

Met Val Asp Gln Leu Gln Gly Thr Trp Lys Ser Val Ser Cys Asp Asn  
1 5 10 15

Phe Glu Asn Tyr Met Lys Glu Leu Gly Val Gly Arg Ala Ser Arg Lys  
20 25 30

Leu Gly Cys Leu Ala Lys Pro Thr Val Thr Ile Ser Thr Asp Gly Asp  
35 40 45

Leu Ile Thr Ile Lys Thr Lys Ser Ile Phe Lys Asn Lys Glu Ile Ser  
50 55 60

Phe Lys Leu Gly Glu Glu Phe Glu Glu Thr Thr Pro Ser Gly Arg Lys  
65 70 75 80

Ser Lys Ser Thr Val Ile Leu Asp Asn Asp Ser Leu Val Gln Val Gln  
85 90 95

Asp Trp Asp Gly Lys Glu Ala Thr Ile Cys Arg Arg Leu Val Asp Gly  
100 105 110

Lys Met Val Val Glu Ser Ala Val Asn Asn Val Thr Cys Thr Arg Thr  
115 120 125

Tyr Gln Arg Val  
130

<210> 389  
<211> 132  
<212> PRT  
<213> *Oryzctolagus cuniculus*

<400> 389  
Met Ser Asn Lys Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Asp Asp Tyr Met Lys Ala Leu Gly Val Gly Leu Ala Thr Arg Lys  
20 25 30

Leu Gly Asn Leu Ala Lys Pro Asn Val Ile Ile Ser Lys Lys Gly Asp  
35 40 45

Ile Ile Thr Ile Arg Thr Glu Ser Thr Phe Lys Asn Thr Glu Ile Ser  
50 55 60

Phe Lys Leu Gly Gln Glu Phe Glu Glu Thr Thr Ala Asp Asn Arg Lys  
65 70 75 80

Thr Lys Ser Ile Ile Thr Leu Glu Arg Gly Ala Leu Asn Gln Val Gln  
85 90 95

Lys Trp Asp Gly Lys Glu Thr Thr Ile Lys Arg Lys Leu Val Asp Gly  
100 105 110

Lys Met Val Val Glu Cys Lys Met Lys Gly Val Val Cys Thr Arg Ile  
115 120 125

Tyr Glu Lys Val  
130

<210> 390  
<211> 132  
<212> PRT  
<213> *Homo sapiens*

<400> 390

Met Ser Asn Lys Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Asp Asp Tyr Met Lys Ala Leu Gly Val Gly Leu Ala Thr Arg Lys  
20 25 30

Leu Gly Asn Leu Ala Lys Pro Thr Val Ile Ile Ser Lys Lys Gly Asp  
35 40 45

Ile Ile Thr Ile Arg Thr Glu Ser Thr Phe Lys Asn Thr Glu Ile Ser  
50 55 60

Phe Lys Leu Gly Gln Glu Phe Glu Glu Thr Thr Ala Asp Asn Arg Lys  
65 70 75 80

Thr Lys Ser Ile Val Thr Leu Gln Arg Gly Ser Leu Asn Gln Val Gln  
85 90 95

Arg Trp Asp Gly Lys Glu Thr Thr Ile Lys Arg Lys Leu Val Asn Gly  
100 105 110

Lys Met Val Ala Glu Cys Lys Met Lys Gly Val Val Cys Thr Arg Ile  
115 120 125

Tyr Glu Lys Val  
130

<210> 391

<211> 132

<212> PRT

<213> Mus musculus

<400> 391

Met Ser Asn Lys Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu His  
1 5 10 15

Phe Asp Asp Tyr Met Lys Ala Leu Gly Val Gly Leu Ala Asn Arg Lys  
20 25 30

Leu Gly Asn Leu Ala Lys Pro Thr Val Ile Ile Ser Lys Lys Gly Asp  
35 40 45

Tyr Ile Thr Ile Arg Thr Glu Ser Ala Phe Lys Asn Thr Glu Ile Ser  
50 55 60

Phe Lys Leu Gly Gln Glu Phe Asp Glu Thr Thr Ala Asp Asn Arg Lys  
65 70 75 80

Ala Lys Ser Ile Val Thr Leu Glu Arg Gly Ser Leu Lys Gln Val Gln  
85 90 95

Lys Trp Asp Gly Lys Glu Thr Ala Ile Arg Arg Thr Leu Leu Asp Gly  
100 105 110

Arg Met Val Val Glu Cys Ile Met Lys Gly Val Val Cys Thr Arg Ile  
115 120 125

Tyr Glu Lys Val  
130

<210> 392

<211> 132

<212> PRT

<213> Bos taurus

<400> 392

Met Cys Asp Ala Phe Val Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Asp Asp Tyr Met Lys Glu Val Gly Val Gly Phe Ala Thr Arg Lys  
20 25 30

Val Ala Gly Met Ala Lys Pro Thr Leu Ile Ile Ser Leu Asn Gly Gly  
35 40 45

Val Val Thr Ile Lys Ser Glu Ser Thr Phe Lys Asn Thr Glu Ile Ser  
50 55 60

Phe Lys Leu Gly Gln Glu Phe Asp Glu Ile Thr Pro Asp Asp Arg Lys  
65 70 75 80

Val Lys Ser Ile Val Asn Leu Asp Glu Gly Ala Leu Val Gln Val Gln  
85 90 95

Asn Trp Asp Gly Lys Ser Thr Thr Ile Lys Arg Lys Leu Met Asp Asp  
100 105 110

Lys Met Val Leu Glu Cys Val Met Asn Gly Val Thr Ala Thr Arg Val  
115 120 125

Tyr Glu Arg Ala  
130

<210> 393  
<211> 129  
<212> PRT  
<213> Homo sapiens

<400> 393  
Gln Leu Gln Gly Thr Trp Lys Ser Ile Ser Cys Glu Asn Ser Glu Asp  
1 5 10 15  
Tyr Met Lys Glu Leu Gly Ile Gly Arg Ala Ser Arg Lys Leu Gly Arg  
20 25 30  
Leu Ala Lys Pro Thr Val Thr Ile Ser Thr Asp Gly Asp Val Ile Thr  
35 40 45  
Ile Lys Thr Lys Ser Ile Phe Lys Asn Asn Glu Ile Ser Phe Lys Leu  
50 55 60  
Gly Glu Glu Phe Glu Glu Ile Thr Pro Gly Gly His Lys Thr Lys Ser  
65 70 75 80  
Lys Val Thr Leu Asp Lys Glu Ser Leu Ile Gln Val Gln Asp Trp Asp  
85 90 95  
Gly Lys Glu Thr Thr Ile Thr Arg Lys Leu Val Asp Gly Lys Met Val  
100 105 110  
Val Glu Ser Thr Val Asn Ser Val Ile Cys Thr Arg Thr Tyr Glu Lys  
115 120 125  
Val

<210> 394  
<211> 145  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: lipocalin  
domain sequence

<400> 394  
Lys Phe Ala Gly Lys Trp Tyr Leu Val Ala Ser Ala Asn Phe Asp Pro  
1 5 10 15



Glu Leu Lys Glu Glu Leu Gly Val Leu Glu Ala Thr Arg Lys Glu Ile  
20 25 30

Thr Pro Leu Lys Glu Gly Asn Leu Glu Ile Val Phe Asp Gly Asp Lys  
35 40 45

Asn Gly Ile Cys Glu Glu Thr Phe Gly Lys Leu Glu Lys Thr Lys Lys  
50 55 60

Leu Gly Val Glu Phe Asp Tyr Tyr Thr Gly Asp Asn Arg Phe Val Val  
65 70 75 80

Leu Asp Thr Asp Tyr Asp Asn Tyr Leu Leu Val Cys Val Gln Lys Gly  
85 90 95

Asp Gly Asn Glu Thr Ser Arg Thr Ala Glu Leu Tyr Gly Arg Thr Pro  
100 105 110

Glu Leu Ser Pro Glu Ala Leu Glu Leu Phe Glu Thr Ala Thr Lys Glu  
115 120 125

Leu Gly Ile Pro Glu Asp Asn Val Val Cys Thr Arg Gln Thr Glu Arg  
130 135 140

Cys  
145

<210> 395

<211> 132

<212> PRT

<213> Homo sapiens

<400> 395

Met Val Glu Pro Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Glu Asp Tyr Met Lys Glu Leu Gly Val Asn Phe Ala Ala Arg Asn  
20 25 30

Met Ala Gly Leu Val Lys Pro Thr Val Thr Ile Ser Val Asp Gly Lys  
35 40 45

Met Met Thr Ile Arg Thr Glu Ser Ser Phe Gln Asp Thr Lys Ile Ser  
50 55 60

Phe Lys Leu Gly Glu Glu Phe Asp Glu Thr Thr Ala Asp Asn Arg Lys

65		70		75		80									
Val	Lys	Ser	Thr	Ile	Thr	Leu	Glu	Asn	Gly	Ser	Met	Ile	His	Val	Gln
				85					90					95	
Lys	Trp	Leu	Gly	Lys	Glu	Thr	Thr	Ile	Lys	Arg	Lys	Ile	Val	Asp	Glu
		100						105					110		
Lys	Met	Val	Val	Glu	Cys	Lys	Met	Asn	Asn	Ile	Val	Ser	Thr	Arg	Ile
		115					120					125			
Tyr	Glu	Lys	Val												
	130														

<210> 396  
 <211> 132  
 <212> PRT  
 <213> Mus musculus

<400> 396
Met Ile Glu Pro Phe Leu Gly Thr Trp Lys Leu Ile Ser Ser Glu Asn
1 5 10 15
Phe Glu Asn Tyr Val Arg Glu Leu Gly Val Glu Cys Glu Pro Arg Lys
20 25 30
Val Ala Cys Leu Ile Lys Pro Ser Val Ser Ile Ser Phe Asn Gly Glu
35 40 45
Arg Met Asp Ile Gln Ala Gly Ser Ala Cys Arg Asn Thr Glu Ile Ser
50 55 60
Phe Lys Leu Gly Glu Glu Phe Glu Glu Thr Thr Ala Asp Asn Arg Lys
65 70 75 80
Val Lys Ser Leu Ile Thr Phe Glu Gly Gly Ser Met Ile Gln Val Gln
85 90 95
Lys Trp Leu Gly Lys Gln Thr Thr Ile Lys Arg Lys Ile Val Asp Gly
100 105 110
Lys Met Val Val Glu Cys Thr Met Asn Asn Val Val Ser Thr Arg Ile
115 120 125
Tyr Glu Arg Val
130

<210> 397

<211> 132

<212> PRT

<213> Mus musculus

<400> 397

Met Ile Glu Pro Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Glu Asn Tyr Val Arg Glu Leu Gly Val Glu Cys Glu Pro Arg Lys  
20 25 30

Val Ala Cys Leu Ile Lys Pro Ser Val Ser Ile Ser Phe Asn Gly Glu  
35 40 45

Arg Met Asp Ile Gln Ala Gly Ser Ala Cys Arg Asn Thr Lys Ile Ser  
50 55 60

Phe Lys Leu Gly Glu Glu Phe Glu Glu Thr Thr Ala Asp Asn Arg Lys  
65 70 75 80

Val Lys Ser Leu Ile Thr Phe Glu Gly Gly Ser Met Ile Gln Ile Gln  
85 90 95

Arg Trp Leu Gly Lys Gln Thr Thr Ile Lys Arg Arg Ile Val Asp Gly  
100 105 110

Arg Met Val Val Glu Cys Thr Met Asn Asn Val Val Ser Thr Arg Thr  
115 120 125

Tyr Glu Arg Val  
130

<210> 398

<211> 132

<212> PRT

<213> Rattus norvegicus

<400> 398

Met Ile Glu Pro Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
1 5 10 15

Phe Glu Asn Tyr Val Arg Glu Leu Gly Val Glu Cys Glu Pro Arg Lys  
20 25 30

Val Ala Cys Leu Ile Lys Pro Ser Val Ser Ile Ser Phe Asn Gly Glu

35                      40                      45  
 Arg Met Asp Ile Gln Ala Gly Ser Ala Cys Arg Asn Thr Glu Ile Ser  
     50                      55                      60  
 Phe Lys Leu Gly Glu Glu Phe Glu Glu Thr Thr Ala Asp Asn Arg Lys  
     65                      70                      75                      80  
 Val Lys Ser Leu Ile Thr Phe Glu Gly Gly Ser Met Ile Gln Ile Gln  
                     85                      90                      95  
 Arg Trp Leu Gly Lys Gln Thr Thr Ile Lys Arg Arg Ile Val Asp Gly  
                     100                      105                      110  
 Arg Met Val Val Glu Cys Thr Met Asn Asn Val Val Ser Thr Arg Thr  
                     115                      120                      125  
 Tyr Glu Arg Val  
     130

<210> 399  
 <211> 132  
 <212> PRT  
 <213> Sus scrofa

<400> 399  
 Met Cys Asp Ala Phe Val Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
     1                      5                      10                      15  
 Phe Asp Asp Tyr Met Lys Glu Val Gly Val Gly Phe Ala Thr Arg Lys  
                     20                      25                      30  
 Val Ala Gly Met Ala Lys Pro Asn Leu Ile Ile Thr Val Asn Gly Asp  
                     35                      40                      45  
 Met Ile Thr Ile Arg Ser Glu Ser Thr Phe Lys Asn Thr Glu Ile Ala  
                     50                      55                      60  
 Phe Lys Leu Gly Gln Glu Phe Asp Glu Val Thr Ala Asp Asp Arg Lys  
     65                      70                      75                      80  
 Val Lys Ser Thr Ile Thr Leu Asp Gly Gly Ala Leu Val Gln Val Gln  
                     85                      90                      95  
 Lys Trp Asp Gly Lys Thr Thr Thr Ile Asn Arg Lys Ile Val Asp Asp  
                     100                      105                      110

Lys Leu Val Val Glu Cys Ile Met Lys Gly Val Thr Ala Thr Arg Ile  
115 120 125

Tyr Glu Arg Ala  
130

<210> 400  
<211> 124  
<212> PRT  
<213> Homo sapiens

<400> 400  
Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn Phe Glu Asp Tyr  
1 5 10 15

Met Lys Glu Leu Gly Phe Ala Ala Arg Asn Met Ala Gly Leu Val Lys  
20 25 30

Pro Thr Val Thr Ile Ser Val Asp Gly Lys Met Met Thr Ile Arg Thr  
35 40 45

Glu Ser Ser Phe Gln Asp Thr Lys Ile Ser Phe Lys Leu Gly Glu Glu  
50 55 60

Phe Asp Glu Thr Thr Ala Asp Asn Arg Lys Val Lys Ser Thr Ile Thr  
65 70 75 80

Leu Glu Asn Gly Ser Met Ile His Val Gln Lys Trp Leu Gly Lys Glu  
85 90 95

Thr Thr Ile Lys Arg Lys Ile Val Asp Glu Lys Met Val Val Glu Cys  
100 105 110

Lys Met Asn Asn Ile Val Ser Thr Arg Ile Tyr Glu  
115 120

<210> 401  
<211> 127  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: lipocalin  
domain sequence

<400> 401

Phe Ala Gly Lys Trp Tyr Leu Val Ala Ser Ala Asn Phe Asp Pro Glu  
1 5 10 15  
Leu Lys Glu Glu Leu Gly Val Leu Glu Ala Thr Arg Lys Glu Ile Thr  
20 25 30  
Pro Leu Lys Glu Gly Asn Leu Glu Ile Val Phe Asp Gly Asp Lys Asn  
35 40 45  
Gly Ile Cys Glu Glu Thr Phe Gly Lys Leu Glu Lys Thr Lys Lys Leu  
50 55 60  
Gly Val Glu Phe Asp Tyr Tyr Thr Gly Asp Asn Arg Phe Val Val Leu  
65 70 75 80  
Asp Thr Asp Tyr Asp Asn Tyr Leu Leu Val Cys Val Gln Lys Gly Asp  
85 90 95  
Gly Asn Glu Thr Ser Arg Thr Ala Glu Leu Tyr Gly Arg Thr Pro Glu  
100 105 110  
Leu Ser Pro Glu Ala Leu Glu Leu Phe Glu Thr Ala Thr Lys Glu  
115 120 125

<210> 402

<211> 391

<212> PRT

<213> Homo sapiens

<400> 402

His Gln Ala Ala His Gln Pro Phe Pro Arg Pro Arg Phe Arg Gln Glu  
1 5 10 15  
Thr Gly His Pro Ser Leu Gln Arg Asp Phe Pro Arg Ser Phe Leu Leu  
20 25 30  
Asp Leu Pro Asn Phe Pro Asp Leu Ser Lys Ala Asp Ile Asn Gly Gln  
35 40 45  
Asn Pro Asn Ile Gln Val Thr Ile Glu Val Val Asp Gly Pro Asp Ser  
50 55 60  
Glu Ala Asp Lys Asp Gln His Pro Glu Asn Lys Pro Ser Trp Ser Val  
65 70 75 80  
Pro Ser Pro Asp Trp Arg Ala Trp Trp Gln Arg Ser Leu Ser Leu Ala  
85 90 95

Arg	Ala	Asn	Ser	Gly	Asp	Gln	Asp	Tyr	Lys	Tyr	Asp	Ser	Thr	Ser	Asp	100	105	110
Asp	Ser	Asn	Phe	Leu	Asn	Pro	Pro	Arg	Gly	Trp	Asp	His	Thr	Ala	Pro	115	120	125
Gly	His	Arg	Thr	Phe	Glu	Thr	Lys	Asp	Gln	Pro	Glu	Tyr	Asp	Ser	Thr	130	135	140
Asp	Gly	Glu	Gly	Asp	Trp	Ser	Leu	Trp	Ser	Val	Cys	Ser	Val	Thr	Cys	145	150	155
Gly	Asn	Gly	Asn	Gln	Lys	Arg	Thr	Arg	Ser	Cys	Gly	Tyr	Ala	Cys	Thr	165	170	175
Ala	Thr	Glu	Ser	Arg	Thr	Cys	Asp	Arg	Pro	Asn	Cys	Pro	Gly	Ile	Glu	180	185	190
Asp	Thr	Phe	Arg	Thr	Ala	Ala	Thr	Glu	Val	Ser	Leu	Leu	Ala	Gly	Ser	195	200	205
Glu	Glu	Phe	Asn	Ala	Thr	Lys	Leu	Phe	Glu	Val	Asp	Thr	Asp	Ser	Cys	210	215	220
Glu	Arg	Trp	Met	Ser	Cys	Lys	Ser	Glu	Phe	Leu	Lys	Lys	Tyr	Met	His	225	230	235
Lys	Val	Met	Asn	Asp	Leu	Pro	Ser	Cys	Pro	Cys	Ser	Tyr	Pro	Thr	Glu	245	250	255
Val	Ala	Tyr	Ser	Thr	Ala	Asp	Ile	Phe	Asp	Arg	Ile	Lys	Arg	Lys	Asp	260	265	270
Phe	Arg	Trp	Lys	Asp	Ala	Ser	Gly	Pro	Lys	Glu	Lys	Leu	Glu	Ile	Tyr	275	280	285
Lys	Pro	Thr	Ala	Arg	Tyr	Cys	Ile	Arg	Ser	Met	Leu	Ser	Leu	Glu	Ser	290	295	300
Thr	Thr	Leu	Ala	Ala	Gln	His	Cys	Cys	Tyr	Gly	Asp	Asn	Met	Gln	Leu	305	310	315
Ile	Thr	Arg	Gly	Lys	Gly	Ala	Gly	Thr	Pro	Asn	Leu	Ile	Ser	Thr	Glu	325	330	335
Phe	Ser	Ala	Glu	Leu	His	Tyr	Lys	Val	Asp	Val	Leu	Pro	Trp	Ile	Ile	340	345	350

Cys Lys Gly Asp Trp Ser Arg Tyr Asn Glu Ala Arg Pro Pro Asn Asn  
 355 360 365

Gly Gln Lys Cys Thr Glu Ser Pro Ser Asp Glu Asp Tyr Ile Lys Gln  
 370 375 380

Phe Gln Glu Ala Arg Glu Tyr  
 385 390

<210> 403

<211> 538

<212> PRT

<213> Homo sapiens

<400> 403

Val His Ser His Gly Asp Lys Asp Ser Gln Thr Cys Ile Arg Val Ser  
 1 5 10 15

Ala Ser Pro Asp Pro Arg Pro Leu Lys Glu Glu Glu Glu Ala Pro Leu  
 20 25 30

Leu Pro Arg Thr His Leu Gln Ala Glu Pro His Gln His Gly Cys Trp  
 35 40 45

Thr Val Thr Glu Pro Ala Ala Met Thr Pro Gly Asn Ala Thr Pro Pro  
 50 55 60

Arg Thr Pro Glu Val Thr Pro Leu Arg Leu Glu Leu Gln Lys Leu Pro  
 65 70 75 80

Gly Leu Ala Asn Thr Thr Leu Ser Thr Pro Asn Pro Asp Thr Gln Ala  
 85 90 95

Ser Ala Ser Pro Asp Pro Arg Pro Leu Arg Glu Glu Glu Glu Ala Arg  
 100 105 110

Leu Leu Pro Arg Thr His Leu Gln Ala Glu Leu His Gln His Gly Cys  
 115 120 125

Trp Thr Val Thr Glu Pro Ala Ala Leu Thr Pro Gly Asn Ala Thr Pro  
 130 135 140

Pro Arg Thr Gln Glu Val Thr Pro Leu Leu Leu Glu Leu Gln Lys Leu  
 145 150 155 160

Pro Glu Leu Val His Ala Thr Leu Ser Thr Pro Asn Pro Asp Asn Gln





420	425	430
Asp Ile Tyr Gln Pro Thr Ala Arg Phe Cys Leu Arg Ser Met Leu Ser		
435	440	445
Gly Glu Ser Ser Thr Leu Ala Ala Gln His Cys Cys Tyr Asp Glu Asp		
450	455	460
Ser Arg Leu Leu Thr Arg Gly Lys Gly Ala Gly Met Pro Asn Leu Ile		
465	470	475
Ser Thr Asp Phe Ser Pro Lys Leu His Phe Lys Phe Asp Thr Thr Pro		
485	490	495
Trp Ile Leu Cys Lys Gly Asp Trp Ser Arg Leu His Ala Val Leu Pro		
500	505	510
Pro Asn Asn Gly Arg Ala Cys Thr Asp Asn Pro Leu Glu Glu Glu Tyr		
515	520	525
Leu Ala Gln Leu Gln Glu Ala Lys Glu Tyr		
530	535	

<210> 404

<211> 151

<212> PRT

<213> Homo sapiens

<400> 404

Lys Val Met Asn Asp Leu Pro Ser Cys Pro Cys Ser Tyr Pro Thr Glu
1 5 10 15
Val Ala Tyr Ser Thr Ala Asp Ile Phe Asp Arg Ile Lys Arg Lys Asp
20 25 30
Phe Arg Trp Lys Asp Ala Ser Gly Pro Lys Glu Lys Leu Glu Ile Tyr
35 40 45
Lys Pro Thr Ala Arg Tyr Cys Ile Arg Ser Met Leu Ser Leu Glu Ser
50 55 60
Thr Thr Leu Ala Ala Gln His Cys Cys Tyr Gly Asp Asn Met Gln Leu
65 70 75 80
Ile Thr Arg Gly Lys Gly Ala Gly Thr Pro Asn Leu Ile Ser Thr Glu
85 90 95

Phe Ser Ala Glu Leu His Tyr Lys Val Asp Val Leu Pro Trp Ile Ile  
100 105 110

Cys Lys Gly Asp Trp Ser Arg Tyr Asn Glu Ala Arg Pro Pro Asn Asn  
115 120 125

Gly Gln Lys Cys Thr Glu Ser Pro Ser Asp Glu Asp Tyr Ile Lys Gln  
130 135 140

Phe Gln Glu Ala Arg Glu Tyr  
145 150

<210> 405

<211> 56

<212> PRT

<213> Homo sapiens

<400> 405

Val Gly Ser Asp Thr Thr Ser Glu Thr Ser Phe Ser Leu Ser Lys Glu  
1 5 10 15

Ala Pro Arg Glu His Leu Asp His Gln Ala Ala His Gln Pro Phe Pro  
20 25 30

Arg Pro Arg Phe Arg Gln Glu Thr Gly His Pro Ser Leu Gln Arg Asp  
35 40 45

Phe Pro Arg Ser Phe Leu Leu Asp  
50 55

<210> 406

<211> 42

<212> PRT

<213> Homo sapiens

<400> 406

Gly Asp Trp Ser Leu Trp Ser Val Cys Ser Val Thr Cys Gly Asn Gly  
1 5 10 15

Asn Gln Lys Arg Thr Arg Ser Cys Gly Tyr Ala Cys Thr Ala Thr Glu  
20 25 30

Ser Arg Thr Cys Asp Arg Pro Asn Cys Pro  
35 40

<210> 407  
<211> 50  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Thrombospondin  
type 1 domain sequence

<400> 407  
Gly Glu Trp Ser Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Gly Gly  
1 5 10 15  
Val Gln Thr Arg Thr Arg Cys Cys Asn Pro Pro Pro Asn Gly Gly Gly  
20 25 30  
Pro Cys Thr Gly Pro Asp Thr Glu Thr Arg Ala Cys Asn Glu Gln Pro  
35 40 45  
Cys Pro  
50

<210> 408  
<211> 41  
<212> PRT  
<213> Homo sapiens

<400> 408  
Gly Asp Trp Ser Leu Trp Ser Val Cys Ser Val Thr Cys Gly Asn Gly  
1 5 10 15  
Asn Gln Lys Arg Thr Arg Ser Cys Gly Tyr Ala Cys Thr Ala Thr Glu  
20 25 30  
Ser Arg Thr Cys Asp Arg Pro Asn Cys  
35 40

<210> 409  
<211> 48  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Thrombospondin  
type 1 domain sequence

<400> 409

Ser Pro Trp Ser Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Lys Gly  
1 5 10 15

Ile Arg Thr Arg Gln Arg Thr Cys Asn Ser Pro Ala Gly Gly Lys Pro  
20 25 30

Cys Thr Gly Asp Ala Gln Glu Thr Glu Ala Cys Met Met Asp Pro Cys  
35 40 45

<210> 410

<211> 460

<212> PRT

<213> Homo sapiens

<400> 410

Met Ala Gly Tyr Leu Ser Glu Ser Asp Phe Val Met Val Glu Glu Gly  
1 5 10 15

Phe Ser Thr Arg Asp Leu Leu Lys Glu Leu Thr Leu Gly Ala Ser Gln  
20 25 30

Ala Thr Thr Asp Glu Val Ala Ala Phe Phe Val Ala Asp Leu Gly Ala  
35 40 45

Ile Val Arg Lys His Phe Cys Phe Leu Lys Cys Leu Pro Arg Val Arg  
50 55 60

Pro Phe Tyr Ala Val Lys Cys Asn Ser Ser Pro Gly Val Leu Lys Val  
65 70 75 80

Leu Ala Gln Leu Gly Leu Gly Phe Ser Cys Ala Asn Lys Ala Glu Met  
85 90 95

Glu Leu Val Gln His Ile Gly Ile Pro Ala Ser Lys Ile Ile Cys Ala  
100 105 110

Asn Pro Cys Lys Gln Ile Ala Gln Ile Lys Tyr Ala Ala Lys His Gly  
115 120 125

Ile Gln Leu Leu Ser Phe Asp Asn Glu Met Glu Leu Ala Lys Val Val  
130 135 140

Lys Ser His Pro Ser Ala Lys Met Val Leu Cys Ile Ala Thr Asp Asp

145		150		155		160
Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu Lys						
	165		170		175	
Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His His Val Glu Val						
	180		185		190	
Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro Asp Pro Gln Ala						
	195		200		205	
Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe Glu Met Gly Thr						
	210		215		220	
Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly Gly Gly Phe Pro						
	225		230		235	240
Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile Ala Ser Val Ile						
		245		250		255
Asn Ser Ala Leu Asp Leu Tyr Phe Pro Glu Gly Cys Gly Val Asp Ile						
	260		265		270	
Phe Ala Glu Leu Gly Arg Tyr Tyr Val Thr Ser Ala Phe Thr Val Ala						
	275		280		285	
Val Ser Ile Ile Ala Lys Lys Glu Val Leu Leu Asp Gln Pro Gly Arg						
	290		295		300	
Glu Glu Glu Asn Gly Ser Thr Ser Lys Thr Ile Val Tyr His Leu Asp						
	305		310		315	320
Glu Gly Val Tyr Gly Ile Phe Asn Ser Val Leu Phe Asp Asn Ile Cys						
		325		330		335
Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu Gln Pro Leu Tyr						
		340		345		350
Ser Ser Ser Leu Trp Gly Pro Ala Val Asp Gly Cys Asp Cys Val Ala						
	355		360		365	
Glu Gly Leu Trp Leu Pro Gln Leu His Val Gly Asp Trp Leu Val Phe						
	370		375		380	
Asp Asn Met Gly Ala Tyr Thr Val Gly Met Gly Ser Pro Phe Trp Gly						
	385		390		395	400
Thr Gln Ala Cys His Ile Thr Tyr Ala Met Ser Arg Val Ala Trp Glu						

Ala	Leu	Arg	Arg	Gln	Leu	Met	Ala	Ala	Glu	Gln	Glu	Asp	Asp	Val	Glu
				420					425					430	
Gly	Val	Cys	Lys	Pro	Leu	Ser	Cys	Gly	Trp	Glu	Ile	Thr	Asp	Thr	Leu
		435					440						445		
Cys	Val	Gly	Pro	Val	Phe	Thr	Pro	Ala	Ser	Ile	Met				
	450					455					460				

<210> 411  
 <211> 480  
 <212> PRT  
 <213> Homo sapiens

Met	Ala	Gly	Tyr	Leu	Ser	Glu	Ser	Asp	Phe	Val	Met	Val	Glu	Glu	Gly
1				5					10					15	
Phe	Ser	Thr	Arg	Asp	Leu	Leu	Lys	Glu	Leu	Thr	Leu	Gly	Ala	Ser	Gln
			20					25					30		
Ala	Thr	Thr	Asp	Glu	Val	Ala	Ala	Phe	Phe	Val	Ala	Asp	Leu	Gly	Ala
		35					40					45			
Ile	Val	Arg	Lys	His	Phe	Cys	Phe	Leu	Lys	Cys	Leu	Pro	Arg	Val	Arg
	50					55					60				
Pro	Phe	Tyr	Ala	Val	Lys	Cys	Asn	Ser	Ser	Pro	Gly	Val	Leu	Lys	Val
	65				70					75				80	
Leu	Ala	Gln	Leu	Gly	Leu	Gly	Phe	Ser	Cys	Ala	Asn	Lys	Ala	Glu	Met
			85						90					95	
Glu	Leu	Val	Gln	His	Ile	Gly	Ile	Pro	Ala	Ser	Lys	Ile	Ile	Cys	Ala
		100						105					110		
Asn	Pro	Cys	Lys	Gln	Ile	Ala	Gln	Ile	Lys	Tyr	Ala	Ala	Lys	His	Gly
		115					120					125			
Ile	Gln	Leu	Leu	Ser	Phe	Asp	Asn	Glu	Met	Glu	Leu	Ala	Lys	Val	Val
	130					135					140				
Lys	Ser	His	Pro	Ser	Ala	Lys	Met	Val	Leu	Cys	Ile	Ala	Thr	Asp	Asp
145					150					155				160	

Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu Lys  
 165 170 175  
 Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His His Val Glu Val  
 180 185 190  
 Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro Asp Pro Gln Ala  
 195 200 205  
 Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe Glu Met Gly Thr  
 210 215 220  
 Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly Gly Gly Phe Pro  
 225 230 235 240  
 Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile Ala Ser Val Ile  
 245 250 255  
 Asn Ser Ala Leu Asp Leu Tyr Phe Pro Glu Gly Cys Gly Val Asp Ile  
 260 265 270  
 Phe Ala Glu Leu Gly Arg Tyr Tyr Val Thr Ser Ala Phe Thr Val Ala  
 275 280 285  
 Val Ser Ile Ile Ala Lys Lys Glu Val Leu Leu Asp Gln Pro Gly Arg  
 290 295 300  
 Glu Ala Pro Leu Pro Pro Pro His Ile Ala Thr Cys Ala Ala Ser Glu  
 305 310 315 320  
 Pro Ser Pro Pro Ala Glu Glu Asn Gly Ser Thr Ser Lys Thr Ile Val  
 325 330 335  
 Tyr His Leu Asp Glu Gly Val Tyr Gly Ile Phe Asn Ser Val Leu Phe  
 340 345 350  
 Asp Asn Ile Cys Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu  
 355 360 365  
 Gln Pro Leu Tyr Ser Ser Ser Leu Trp Gly Pro Ala Val Asp Gly Cys  
 370 375 380  
 Asp Cys Val Ala Glu Gly Leu Trp Leu Pro Gln Leu His Val Gly Asp  
 385 390 395 400  
 Trp Leu Val Phe Asp Asn Met Gly Ala Tyr Thr Val Gly Met Gly Ser  
 405 410 415



Pro Phe Trp Gly Thr Gln Ala Cys His Ile Thr Tyr Ala Met Ser Arg  
420 425 430

Val Ala Trp Glu Ala Leu Arg Arg Gln Leu Met Ala Ala Glu Gln Glu  
435 440 445

Asp Asp Val Glu Gly Val Cys Lys Pro Leu Ser Cys Gly Trp Glu Ile  
450 455 460

Thr Asp Thr Leu Cys Val Gly Pro Val Phe Thr Pro Ala Ser Ile Met  
465 470 475 480

<210> 412  
<211> 365  
<212> PRT  
<213> Homo sapiens

<400> 412  
Met Glu Leu Val Gln His Ile Gly Ile Pro Ala Ser Lys Ile Ile Cys  
1 5 10 15

Ala Asn Pro Cys Lys Gln Ile Ala Gln Ile Lys Tyr Ala Ala Lys His  
20 25 30

Gly Ile Gln Leu Leu Ser Phe Asp Asn Glu Met Glu Leu Ala Lys Val  
35 40 45

Val Lys Ser His Pro Ser Ala Lys Met Val Leu Cys Ile Ala Thr Asp  
50 55 60

Asp Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu  
65 70 75 80

Lys Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His His Val Glu  
85 90 95

Val Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro Asp Pro Gln  
100 105 110

Ala Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe Glu Met Gly  
115 120 125

Thr Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly Gly Gly Phe  
130 135 140

Pro Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile Ala Ser Val  
 145 150 155 160  
 Ile Asn Ser Ala Leu Asp Leu Tyr Phe Pro Glu Gly Cys Gly Val Asp  
 165 170 175  
 Ile Phe Ala Glu Leu Gly Arg Tyr Tyr Val Thr Ser Ala Phe Thr Val  
 180 185 190  
 Ala Val Ser Ile Ile Ala Lys Lys Glu Val Leu Leu Asp Gln Pro Gly  
 195 200 205  
 Arg Glu Glu Glu Asn Gly Ser Thr Ser Lys Thr Ile Val Tyr His Leu  
 210 215 220  
 Asp Glu Gly Val Tyr Gly Ile Phe Asn Ser Val Leu Phe Asp Asn Ile  
 225 230 235 240  
 Cys Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu Gln Pro Leu  
 245 250 255  
 Tyr Ser Ser Ser Leu Trp Gly Pro Ala Val Asp Gly Cys Asp Cys Val  
 260 265 270  
 Ala Glu Gly Leu Trp Leu Pro Gln Leu His Val Gly Asp Trp Leu Val  
 275 280 285  
 Phe Asp Asn Met Gly Ala Tyr Thr Val Gly Met Gly Ser Pro Phe Trp  
 290 295 300  
 Gly Thr Gln Ala Cys His Ile Thr Tyr Ala Met Ser Arg Val Ala Trp  
 305 310 315 320  
 Glu Ala Leu Arg Arg Gln Leu Met Ala Ala Glu Gln Glu Asp Asp Val  
 325 330 335  
 Glu Gly Val Cys Lys Pro Leu Ser Cys Gly Trp Glu Ile Thr Asp Thr  
 340 345 350  
 Leu Cys Val Gly Pro Val Phe Thr Pro Ala Ser Ile Met  
 355 360 365

<210> 413

<211> 362

<212> PRT

<213> Homo sapiens

<400> 413

Met Ala Gly Tyr Leu Ser Glu Ser Asp Phe Val Met Val Glu Glu Gly  
1 5 10 15

Phe Ser Thr Arg Asp Leu Leu Lys Glu Leu Thr Leu Gly Ala Ser Gln  
20 25 30

Ala Thr Thr Asp Glu Val Ala Ala Phe Phe Val Ala Asp Leu Gly Ala  
35 40 45

Ile Val Arg Lys His Phe Cys Phe Leu Lys Cys Leu Pro Arg Val Arg  
50 55 60

Pro Phe Tyr Ala Val Lys Cys Asn Ser Ser Pro Gly Val Leu Lys Val  
65 70 75 80

Leu Ala Gln Leu Gly Leu Gly Phe Ser Cys Ala Asn Lys Ala Glu Met  
85 90 95

Glu Leu Val Gln His Ile Gly Ile Pro Ala Ser Lys Ile Ile Cys Ala  
100 105 110

Asn Pro Cys Lys Gln Ile Ala Gln Ile Lys Tyr Ala Ala Lys His Gly  
115 120 125

Ile Gln Leu Leu Ser Phe Asp Asn Glu Met Glu Leu Ala Lys Val Val  
130 135 140

Lys Ser His Pro Ser Ala Lys Met Val Leu Cys Ile Ala Thr Asp Asp  
145 150 155 160

Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu Lys  
165 170 175

Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His His Val Glu Val  
180 185 190

Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro Asp Pro Gln Ala  
195 200 205

Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe Glu Met Gly Thr  
210 215 220

Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly Gly Gly Phe Pro  
225 230 235 240

Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile Ala Ser Val Ile

				245						250						255			
Asn	Ser	Ala	Leu	Asp	Leu	Tyr	Phe	Pro	Glu	Gly	Cys	Gly	Val	Asp	Ile				
			260					265					270						
Phe	Ala	Glu	Leu	Gly	Arg	Tyr	Tyr	Val	Thr	Ser	Ala	Phe	Thr	Val	Ala				
		275					280					285							
Val	Ser	Ile	Ile	Ala	Lys	Lys	Glu	Val	Leu	Leu	Asp	Gln	Pro	Gly	Arg				
		290				295					300								
Glu	Glu	Glu	Asn	Gly	Ser	Thr	Ser	Lys	Thr	Ile	Val	Tyr	His	Leu	Asp				
305					310					315					320				
Glu	Gly	Val	Tyr	Gly	Ile	Phe	Asn	Ser	Val	Leu	Phe	Asp	Asn	Ile	Cys				
				325					330					335					
Pro	Thr	Pro	Ile	Leu	Gln	Lys	Ser	Lys	Asn	His	Ser	Pro	Cys	Tyr	Met				
			340					345					350						
Ser	Leu	Glu	Ser	Ile	His	Phe	Ile	Ala	Val										
		355					360												

<210> 414

<211> 374

<212> PRT

<213> Homo sapiens

<400> 414

Met	Ala	Gly	Tyr	Leu	Ser	Glu	Ser	Asp	Phe	Val	Met	Val	Glu	Glu	Gly				
1				5					10					15					
Phe	Ser	Thr	Arg	Asp	Leu	Leu	Lys	Glu	Leu	Thr	Leu	Gly	Ala	Ser	Gln				
			20					25					30						
Ala	Thr	Thr	Asp	Glu	Val	Ala	Ala	Phe	Phe	Val	Ala	Asp	Leu	Gly	Ala				
		35					40					45							
Ile	Val	Arg	Lys	His	Phe	Cys	Phe	Leu	Lys	Cys	Leu	Pro	Arg	Val	Arg				
	50					55					60								
Pro	Phe	Tyr	Ala	Val	Lys	Cys	Asn	Ser	Ser	Pro	Gly	Val	Leu	Lys	Val				
65					70					75				80					
Leu	Ala	Gln	Leu	Gly	Leu	Gly	Phe	Ser	Cys	Ala	Asn	Lys	Ala	Glu	Met				
			85					90						95					

Glu	Leu	Val	Gln	His	Ile	Gly	Ile	Pro	Ala	Ser	Lys	Ile	Ile	Cys	Ala	100	105	110
Asn	Pro	Cys	Lys	Gln	Ile	Ala	Gln	Ile	Lys	Tyr	Ala	Ala	Lys	His	Gly	115	120	125
Ile	Gln	Leu	Leu	Ser	Phe	Asp	Asn	Glu	Met	Glu	Leu	Ala	Lys	Val	Val	130	135	140
Lys	Ser	His	Pro	Ser	Ala	Lys	Phe	Val	Gln	Gln	Arg	Gly	Thr	Ala	Cys	145	150	155
Leu	Ile	Arg	Met	Val	Leu	Cys	Ile	Ala	Thr	Asp	Asp	Ser	His	Ser	Leu	165	170	175
Ser	Cys	Leu	Ser	Leu	Lys	Phe	Gly	Val	Ser	Leu	Lys	Ser	Cys	Arg	His	180	185	190
Leu	Leu	Glu	Asn	Ala	Lys	Lys	His	His	Val	Glu	Val	Val	Gly	Val	Ser	195	200	205
Phe	His	Ile	Gly	Ser	Gly	Cys	Pro	Asp	Pro	Gln	Ala	Tyr	Ala	Gln	Ser	210	215	220
Ile	Ala	Asp	Ala	Arg	Leu	Val	Phe	Glu	Met	Gly	Thr	Glu	Leu	Gly	His	225	230	235
Lys	Met	His	Val	Leu	Asp	Leu	Gly	Gly	Gly	Phe	Pro	Gly	Thr	Glu	Gly	245	250	255
Ala	Lys	Val	Arg	Phe	Glu	Glu	Ile	Ala	Ser	Val	Ile	Asn	Ser	Ala	Leu	260	265	270
Asp	Leu	Tyr	Phe	Pro	Glu	Gly	Cys	Gly	Val	Asp	Ile	Phe	Ala	Glu	Leu	275	280	285
Gly	Arg	Tyr	Tyr	Val	Thr	Ser	Ala	Phe	Thr	Val	Ala	Val	Ser	Ile	Ile	290	295	300
Ala	Lys	Lys	Glu	Val	Leu	Leu	Asp	Gln	Pro	Gly	Arg	Glu	Glu	Glu	Asn	305	310	315
Gly	Ser	Thr	Ser	Lys	Thr	Ile	Val	Tyr	His	Leu	Asp	Glu	Gly	Val	Tyr	325	330	335
Gly	Ile	Phe	Asn	Ser	Val	Leu	Phe	Asp	Asn	Ile	Cys	Pro	Thr	Pro	Ile	340	345	350

Leu Gln Lys Ser Lys Asn His Ser Pro Cys Tyr Met Ser Leu Glu Ser  
 355 360 365

Ile His Phe Ile Ala Val  
 370

<210> 415

<211> 237

<212> PRT

<213> Homo sapiens

<400> 415

Asp Leu Gly Ala Ile Val Arg Lys His Phe Cys Phe Leu Lys Cys Leu  
 1 5 10 15

Pro Arg Val Arg Pro Phe Tyr Ala Val Lys Cys Asn Ser Ser Pro Gly  
 20 25 30

Val Leu Lys Val Leu Ala Gln Leu Gly Leu Gly Phe Ser Cys Ala Asn  
 35 40 45

Lys Ala Glu Met Glu Leu Val Gln His Ile Gly Ile Pro Ala Ser Lys  
 50 55 60

Ile Ile Cys Ala Asn Pro Cys Lys Gln Ile Ala Gln Ile Lys Tyr Ala  
 65 70 75 80

Ala Lys His Gly Ile Gln Leu Leu Ser Phe Asp Asn Glu Met Glu Leu  
 85 90 95

Ala Lys Val Val Lys Ser His Pro Ser Ala Lys Met Val Leu Cys Ile  
 100 105 110

Ala Thr Asp Asp Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly  
 115 120 125

Val Ser Leu Lys Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His  
 130 135 140

His Val Glu Val Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro  
 145 150 155 160

Asp Pro Gln Ala Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe  
 165 170 175

Glu Met Gly Thr Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly  
 180 185 190

Gly Gly Phe Pro Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile  
195 200 205

Ala Ser Val Ile Asn Ser Ala Leu Asp Leu Tyr Phe Pro Glu Gly Cys  
210 215 220

Gly Val Asp Ile Phe Ala Glu Leu Gly Arg Tyr Tyr Val  
225 230 235

<210> 416

<211> 244

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

Pyridoxal-dependent decarboxylase domain sequence

<400> 416

Asp Leu Gly Leu Ile Val Arg Arg Ile His Ala Leu Trp Gln Ala Phe  
1 5 10 15

Leu Pro Arg Ile Gln Pro Phe Tyr Ala Val Lys Ala Asn Ser Asp Pro  
20 25 30

Ala Val Leu Arg Leu Leu Ala Glu Leu Gly Thr Gly Phe Asp Cys Ala  
35 40 45

Ser Lys Gly Glu Leu Glu Arg Val Leu Ala Ala Gly Val Pro Pro Glu  
50 55 60

Arg Ile Ile Phe Ala Asn Pro Cys Lys Asp Arg Ser Glu Leu Arg Tyr  
65 70 75 80

Ala Leu Glu His Gly Val Val Cys Val Thr Val Asp Asn Val Glu Glu  
85 90 95

Leu Glu Lys Leu Ala Arg Leu Ala Pro Glu Ala Arg Leu Leu Leu Arg  
100 105 110

Val Lys Pro Asp Val Asp Ala His Ala His Cys Tyr Leu Ser Thr Gly  
115 120 125

Gln Asp Ser Lys Phe Gly Ala Asp Leu Glu Glu Ala Glu Ala Leu Leu  
130 135 140

Lys Ala Ala Lys Glu Leu Gly Leu Asn Val Val Gly Val His Phe His  
 145 150 155 160

Val Gly Ser Gly Cys Thr Asp Ala Glu Ala Phe Val Lys Ala Ala Arg  
 165 170 175

Asp Ala Arg Asn Val Phe Asp Gln Gly Ala Asp Glu Leu Gly Phe Glu  
 180 185 190

Leu Lys Ile Leu Asp Leu Gly Gly Gly Phe Gly Val Asp Tyr Thr Gly  
 195 200 205

Ala Glu Asp Phe Glu Glu Tyr Ala Glu Val Ile Asn Ala Ala Leu Glu  
 210 215 220

Glu Val Phe Pro His Asp Pro His Pro Thr Ile Ile Ala Glu Pro Gly  
 225 230 235 240

Arg Tyr Ile Val

<210> 417

<211> 112

<212> PRT

<213> Homo sapiens

<400> 417

Val Ala Val Ser Ile Ile Ala Lys Lys Glu Val Leu Leu Asp Gln Pro  
 1 5 10 15

Gly Arg Glu Glu Glu Asn Gly Ser Thr Ser Lys Thr Ile Val Tyr His  
 20 25 30

Leu Asp Glu Gly Val Tyr Gly Ile Phe Asn Ser Val Leu Phe Asp Asn  
 35 40 45

Ile Cys Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu Gln Pro  
 50 55 60

Leu Tyr Ser Ser Ser Leu Trp Gly Pro Ala Val Asp Gly Cys Asp Cys  
 65 70 75 80

Val Ala Glu Gly Leu Trp Leu Pro Gln Leu His Val Gly Asp Trp Leu  
 85 90 95

Val Phe Asp Asn Met Gly Ala Tyr Thr Val Gly Met Gly Ser Pro Phe  
 100 105 110



<210> 418  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Pyridoxal-dependent decarboxylase domain sequence

<400> 418

Thr Leu Val Ser Asn Val Ile Ala Lys Lys Thr Val Pro Ser Asp Asp  
1 5 10 15

Glu Asp Gly Lys Asp Asp Thr Arg Met Tyr Tyr Val Asn Asp Gly Gly  
20 25 30

Tyr Ser Ser Phe Ile Arg Pro Leu Leu Tyr His Ala His Pro His Ala  
35 40 45

Leu Leu Leu Arg Arg Ser Leu Asp Glu Glu Pro Pro Arg Lys Ser Ser  
50 55 60

Ile Trp Gly Pro Thr Cys Asp Ser Leu Asp Lys Ile Ile Lys Asp Arg  
65 70 75 80

Leu Leu Pro Glu Leu Asp Val Gly Asp Trp Leu Ala Phe Phe Asp Thr  
85 90 95

Gly Ala Tyr Thr Glu Ala Met Ala Ser Asn Phe  
100 105

<210> 419  
<211> 467  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Pyridoxal-dependent decarboxylase domain sequence

<400> 419

Phe Tyr Val Tyr Asp Leu Gly Leu His Ile Val Arg Arg Ile His Ala

1	5	10	15
Leu Trp Lys Ala Phe Leu Pro Arg Gly Gln Tyr Asn Ser Val Val Lys	20	25	30
Pro Phe Tyr Ala Val Lys Ala Asn Ser Asp Pro Ala Val Leu Arg Leu	35	40	45
Leu Ala Glu Leu Gly Thr His Ser Leu Gly Phe Asp Cys Ala Ser Lys	50	55	60
Gly Glu Leu Glu Arg Val Leu Ala Ala Tyr Leu Ala Gly Val Ser Pro	65	70	75
Glu Arg Ile Ile Phe Ala Asn Pro Cys Lys Ser Arg Ser Glu Leu Arg	85	90	95
Tyr Ala Leu Glu His Arg Lys Met Gly Gly Val Val Cys Val Thr Val	100	105	110
Asp Asn Val Glu Glu Leu Glu Lys Ile Ala Lys Leu Ala Pro Glu Ala	115	120	125
Gly Val Lys Pro Arg Leu Leu Leu Arg Val Lys Pro Asp Val Asp Ala	130	135	140
His Ala His Cys Arg Leu Ser Thr Gly Gln Glu Asp Ser Lys Phe Gly	145	150	155
Ala Asp Leu Glu Asp Gly Glu Asp Ala Glu Ala Leu Leu Lys Ala Ala	165	170	175
Lys Glu Leu Gly Asn Leu Asn Val Val Gly Val His Phe His Val Gly	180	185	190
Ser Gly Ile Ser Asp Leu Glu Ala Phe Val Lys Ala Val Arg Asp Ala	195	200	205
Arg Asn Val Phe Asp Gln Gly Ala Asp Glu Leu Gly Phe Lys Thr Ile	210	215	220
Asp Leu Lys Ile Leu Asp Ile Gly Gly Gly Phe Gly Val Asp Tyr Thr	225	230	235
Gly Thr Arg Ser Gln Ser Asp Met Ser Val Ala Glu Asp Phe Glu Glu	245	250	255
Ile Ala Glu Val Ile Asn Ala Ala Leu Glu Glu Leu Phe Pro His Ala			

260	265	270
Gly Tyr Gly Asp Pro Gly Pro Thr Ile Ile Ala Glu Pro Gly Arg Tyr		
275	280	285
Ile Val Ala Ala Ala Gly Thr Leu Val Ser Asn Val Ile Ala Lys Lys		
290	295	300
Glu Val Pro Ser Asp Asp Ala Asp Thr Thr Ser Asp Ser Leu Arg Glu		
305	310	315
Glu Ser Lys Asp Asp Thr Arg Met Tyr Tyr Val Asn Asp Gly Gly Tyr		
325	330	335
Gly Ser Phe Ile Arg Pro Leu Leu Tyr His Ala His Pro Glu Ala Leu		
340	345	350
Leu Leu Arg Arg Gly Gly Glu Val Gln Tyr Gln Asp Ala Glu Thr Glu		
355	360	365
Arg Ala Ala Asp Lys Ser Leu Ser Asn Phe Ser Leu Phe Gln Ser Tyr		
370	375	380
Pro Asp Ala Trp Gly Ile Asp Gln Leu Phe Pro Val Leu Pro Leu Arg		
385	390	395
Ser Leu Asp Glu Glu Pro Lys Arg Lys Ser Ser Ile Val Gly Pro Thr		
405	410	415
Cys Asp Ser Asp Gly Lys Leu Asp Lys Ile Ile Lys Asp Asp Gly Ile		
420	425	430
Ala Glu Asp Arg Leu Leu Pro Glu Leu Lys Pro Val Gly Asp Trp Leu		
435	440	445
Ala Phe Pro Asp Thr Gly Ala Tyr Thr Tyr Ala Met Ala Ser Asn Tyr		
450	455	460
Asn Gly Phe		
465		

<210> 420

<211> 361

<212> PRT

<213> Homo sapiens

<400> 420

Phe	Phe	Val	Ala	Asp	Leu	Gly	Ala	Ile	Val	Arg	Lys	His	Phe	Cys	Phe	1	5	10	15
Leu	Lys	Cys	Leu	Pro	Arg	Val	Arg	Pro	Phe	Tyr	Ala	Val	Lys	Cys	Asn	20	25	30	
Ser	Ser	Pro	Gly	Val	Leu	Lys	Val	Leu	Ala	Gln	Leu	Gly	Leu	Gly	Phe	35	40	45	
Ser	Cys	Ala	Asn	Lys	Ala	Glu	Met	Glu	Leu	Val	Gln	His	Ile	Gly	Ile	50	55	60	
Pro	Ala	Ser	Lys	Ile	Ile	Cys	Ala	Asn	Pro	Cys	Lys	Gln	Ile	Ala	Gln	65	70	75	80
Ile	Lys	Tyr	Ala	Ala	Lys	His	Gly	Ile	Gln	Leu	Leu	Ser	Phe	Asp	Asn	85	90	95	
Glu	Met	Glu	Leu	Ala	Lys	Val	Val	Lys	Ser	His	Pro	Ser	Ala	Lys	Met	100	105	110	
Val	Leu	Cys	Ile	Ala	Thr	Asp	Asp	Ser	His	Ser	Leu	Ser	Cys	Leu	Ser	115	120	125	
Leu	Lys	Phe	Gly	Val	Ser	Leu	Lys	Ser	Cys	Arg	His	Leu	Leu	Glu	Asn	130	135	140	
Ala	Lys	Lys	His	His	Val	Glu	Val	Val	Gly	Val	Ser	Phe	His	Ile	Gly	145	150	155	160
Ser	Gly	Cys	Pro	Asp	Pro	Gln	Ala	Tyr	Ala	Gln	Ser	Ile	Ala	Asp	Ala	165	170	175	
Arg	Leu	Val	Phe	Glu	Met	Gly	Thr	Glu	Leu	Gly	His	Lys	Met	His	Val	180	185	190	
Leu	Asp	Leu	Gly	Gly	Gly	Phe	Pro	Gly	Thr	Glu	Gly	Ala	Lys	Val	Arg	195	200	205	
Phe	Glu	Glu	Ile	Ala	Ser	Val	Ile	Asn	Ser	Ala	Leu	Asp	Leu	Tyr	Phe	210	215	220	
Pro	Glu	Gly	Cys	Gly	Val	Asp	Ile	Phe	Ala	Glu	Leu	Gly	Arg	Tyr	Tyr	225	230	235	240
Val	Thr	Ser	Ala	Phe	Thr	Val	Ala	Val	Ser	Ile	Ile	Ala	Lys	Lys	Glu	245	250	255	

Val Leu Leu Asp Gln Pro Gly Arg Glu Glu Glu Asn Gly Ser Thr Ser  
 260 265 270

Lys Thr Ile Val Tyr His Leu Asp Glu Gly Val Tyr Gly Ile Phe Asn  
 275 280 285

Ser Val Leu Phe Asp Asn Ile Cys Pro Thr Pro Ile Leu Gln Lys Lys  
 290 295 300

Pro Ser Thr Glu Gln Pro Leu Tyr Ser Ser Ser Leu Trp Gly Pro Ala  
 305 310 315 320

Val Asp Gly Cys Asp Cys Val Ala Glu Gly Leu Trp Leu Pro Gln Leu  
 325 330 335

His Val Gly Asp Trp Leu Val Phe Asp Asn Met Gly Ala Tyr Thr Val  
 340 345 350

Gly Met Gly Ser Pro Phe Trp Gly Thr  
 355 360

<210> 421

<211> 479

<212> PRT

<213> Mus musculus

<400> 421

Met Leu Gln Ile Thr Glu Trp Arg Phe Leu Ala Arg Asp Glu Gly Glu  
 1 5 10 15

Ser Ala Val Ala Glu Asp Pro Thr Trp Gly Glu Asp Glu Glu Pro Leu  
 20 25 30

Ala Cys Thr Thr Asp Ser Trp Ala Gln Gly Ser Val Pro Val Leu His  
 35 40 45

Thr Pro Ala Pro Val Cys Val Glu Glu Gln Phe His Asn Glu Glu Pro  
 50 55 60

Gly Asn Pro Asp Gln Phe Leu Leu Gly Ser Ser Trp Asp Lys Glu Ser  
 65 70 75 80

Gln Lys Pro Thr Gln Pro Ser Glu Pro Ser Ala Glu Pro Lys Val Thr  
 85 90 95

Pro Arg Pro Thr Ala Thr Leu Glu Ala Phe Glu Glu Ala Glu Pro Gly  
 100 105 110

Asp	Ala	Leu	Glu	Val	Pro	His	Gly	Gln	Glu	Gly	Ser	His	Met	Leu	Ala	115	120	125
Val	Pro	Ser	Lys	Glu	Ser	Leu	Arg	Ser	Thr	Ala	Glu	Gly	Glu	Arg	Val	130	135	140
Tyr	Ser	Pro	Gln	Ser	Ser	Leu	Lys	Gln	Pro	Gln	Val	Val	Arg	Leu	Gln	145	150	155
Ala	Ser	Glu	Lys	Glu	Ser	Ser	Phe	Gly	Ser	His	Leu	Ser	Leu	Glu	Asp	165	170	175
Leu	Tyr	Leu	Cys	Met	Pro	Gln	Pro	Asp	Ala	Ala	Gly	Asp	Arg	Leu	Ser	180	185	190
Leu	Gln	Ser	Lys	Gly	Gln	Leu	His	Ser	Ser	Pro	Ile	Gly	Ser	Glu	Ser	195	200	205
His	Leu	Gly	Ala	Leu	Thr	Pro	Ala	Glu	Pro	Ser	Ala	Phe	Gln	Glu	Pro	210	215	220
Glu	Val	Leu	Gly	Glu	Arg	Pro	Lys	His	Lys	Thr	Thr	Thr	Leu	Arg	Met	225	230	235
Asp	Ser	Ser	Arg	Leu	Pro	Arg	His	Trp	Val	Arg	Pro	Val	Ala	Glu	Val	245	250	255
Leu	Ile	Pro	Asp	Leu	Glu	Val	His	Pro	Leu	Glu	Ile	Tyr	Arg	Gly	Arg	260	265	270
Pro	Arg	Arg	Ser	Gln	Ala	Gly	Thr	Ala	Thr	Ser	Ala	Cys	Glu	Ser	Gln	275	280	285
Ala	Leu	Ser	Ser	Arg	Ala	Pro	Ser	Lys	Pro	His	Val	Ser	Ser	Pro	Arg	290	295	300
Phe	Pro	Leu	Gln	Arg	Cys	Ala	Thr	Phe	Arg	Ala	Leu	Gly	Pro	Asp	Pro	305	310	315
Ser	Leu	Asn	Leu	Ala	Gln	Thr	Ser	Pro	Ser	Phe	Gly	Ser	Asn	Val	Pro	325	330	335
Phe	Leu	Ser	Pro	Gly	Phe	Arg	Phe	Leu	Pro	Arg	Asn	Pro	Ile	Pro	Pro	340	345	350
Asp	Val	Ala	Ser	Thr	Pro	Thr	Pro	Lys	Leu	Trp	Pro	Leu	Ala	Lys	Trp	355	360	365

Pro Ser Gly Trp Glu Arg Glu Ala Glu Gln Leu Gly Glu Leu Trp Ala  
 370 375 380

Gly Arg Thr Arg Val Pro Pro Gln Gly Gln Glu Pro Val Glu Val Thr  
 385 390 395 400

Pro Leu Glu Glu Asp Ser Gly Trp Pro Leu Ala Ala Pro Gln Val Leu  
 405 410 415

Glu Ala Thr Ser Gln Val Leu Trp Lys Pro Met Val Ile Ser Glu Thr  
 420 425 430

Met Lys Leu Val Pro Gly Val Ser Met Trp Asn Arg Gly Thr Gln Glu  
 435 440 445

Leu Leu Asn Pro Ala Val Ile Arg Lys Glu Ala Glu Glu Gly Thr Pro  
 450 455 460

Gln Ala Pro Glu Gln Gln Pro Ile Gln Thr Gly Val Ser Lys Pro  
 465 470 475

<210> 422

<211> 300

<212> PRT

<213> Mus musculus

<400> 422

Met Gly Leu Val Leu Arg Lys Met Leu Ser Ser Gly Val Cys Thr Ser  
 1 5 10 15

Asn Val Gln Leu Pro Gly Lys Val Ala Ile Val Thr Gly Ala Asn Thr  
 20 25 30

Gly Ile Gly Lys Glu Thr Ala Lys Asp Leu Ala Gln Arg Gly Ala Arg  
 35 40 45

Val Tyr Leu Ala Cys Arg Asp Val Asp Lys Gly Glu Leu Ala Ala Arg  
 50 55 60

Glu Ile Gln Ala Val Thr Gly Asn Ser Gln Val Phe Val Arg Lys Leu  
 65 70 75 80

Asp Leu Ala Asp Thr Lys Ser Ile Arg Ala Phe Ala Lys Asp Phe Leu  
 85 90 95

Ala Glu Glu Lys His Leu His Leu Leu Ile Asn Asn Ala Gly Val Met

100	105	110
Met Cys Pro Tyr Ser Lys Thr Ala Asp Gly Phe Glu Met His Ile Gly		
115	120	125
Val Asn His Leu Gly His Phe Leu Leu Thr His Leu Leu Leu Glu Lys		
130	135	140
Leu Lys Glu Ser Ala Pro Ser Arg Ile Val Asn Leu Ser Ser Leu Gly		
145	150	155
His His Leu Gly Arg Ile His Phe His Asn Leu Gln Gly Glu Lys Phe		
165	170	175
Tyr Ser Ala Gly Leu Ala Tyr Cys His Ser Lys Leu Ala Asn Ile Leu		
180	185	190
Phe Thr Lys Glu Leu Ala Lys Arg Leu Lys Gly Ser Gly Val Thr Thr		
195	200	205
Tyr Ser Val His Pro Gly Thr Val His Ser Glu Leu Thr Arg Tyr Ser		
210	215	220
Ser Ile Met Arg Trp Leu Trp Gln Leu Phe Phe Val Phe Ile Lys Thr		
225	230	235
Pro Gln Glu Gly Ala Gln Thr Ser Leu Tyr Cys Ala Leu Thr Glu Gly		
245	250	255
Leu Glu Ser Leu Ser Gly Ser His Phe Ser Asp Cys Gln Leu Ala Trp		
260	265	270
Val Ser Tyr Gln Gly Arg Asn Glu Ile Ile Ala Arg Arg Leu Trp Asp		
275	280	285
Val Ser Cys Asp Leu Leu Gly Leu Pro Val Asp Trp		
290	295	300

<210> 423

<211> 293

<212> PRT

<213> Mus musculus

<400> 423

Met Leu Ser Ser Gly Val Cys Thr Ser Asn Val Gln Leu Pro Gly Lys
1 5 10 15



Val	Ala	Ile	Val	Thr	Gly	Ala	Asn	Thr	Gly	Ile	Gly	Lys	Glu	Thr	Ala			
			20						25					30				
Lys	Asp	Leu	Ala	Gln	Arg	Gly	Ala	Arg	Val	Tyr	Leu	Ala	Cys	Arg	Asp			
		35					40					45						
Val	Asp	Lys	Gly	Glu	Leu	Ala	Ala	Arg	Glu	Ile	Gln	Ala	Val	Thr	Gly			
		50					55					60						
Asn	Ser	Gln	Val	Phe	Val	Arg	Lys	Leu	Asp	Leu	Ala	Asp	Thr	Lys	Ser			
	65					70				75					80			
Ile	Arg	Ala	Phe	Ala	Lys	Asp	Phe	Leu	Ala	Glu	Glu	Lys	His	Leu	His			
				85					90					95				
Leu	Leu	Ile	Asn	Asn	Ala	Gly	Val	Met	Met	Cys	Pro	Tyr	Ser	Lys	Thr			
			100					105						110				
Ala	Asp	Gly	Phe	Glu	Met	His	Ile	Gly	Val	Asn	His	Leu	Gly	His	Phe			
		115					120					125						
Leu	Leu	Thr	His	Leu	Leu	Leu	Glu	Lys	Leu	Lys	Glu	Ser	Ala	Pro	Ser			
		130				135					140							
Arg	Ile	Val	Asn	Leu	Ser	Ser	Leu	Gly	His	His	Leu	Gly	Arg	Ile	His			
	145				150					155					160			
Phe	His	Asn	Leu	Gln	Gly	Glu	Lys	Phe	Tyr	Ser	Ala	Gly	Leu	Ala	Tyr			
				165					170					175				
Cys	His	Ser	Lys	Leu	Ala	Asn	Ile	Leu	Phe	Thr	Lys	Glu	Leu	Ala	Lys			
			180					185					190					
Arg	Leu	Lys	Gly	Ser	Gly	Val	Thr	Thr	Tyr	Ser	Val	His	Pro	Gly	Thr			
		195					200					205						
Val	His	Ser	Glu	Leu	Thr	Arg	Tyr	Ser	Ser	Ile	Met	Arg	Trp	Leu	Trp			
		210				215					220							
Gln	Leu	Phe	Phe	Val	Phe	Ile	Lys	Thr	Pro	Gln	Glu	Gly	Ala	Gln	Thr			
	225				230					235					240			
Ser	Leu	Tyr	Cys	Ala	Leu	Thr	Glu	Gly	Leu	Glu	Ser	Leu	Ser	Gly	Ser			
			245						250					255				
His	Phe	Ser	Asp	Cys	Gln	Leu	Ala	Trp	Val	Ser	Tyr	Gln	Gly	Arg	Asn			
			260					265					270					

Glu Ile Ile Ala Arg Arg Leu Trp Asp Val Ser Cys Asp Leu Leu Gly  
 275 280 285

Leu Pro Val Asp Trp  
 290

<210> 424

<211> 316

<212> PRT

<213> Mus musculus

<400> 424

Met Phe Gly Phe Leu Leu Leu Leu Ser Leu Pro Phe Ile Leu Tyr Leu  
 1 5 10 15

Val Thr Pro Lys Ile Arg Lys Met Leu Ser Ser Gly Val Cys Thr Ser  
 20 25 30

Asn Val Gln Leu Pro Gly Lys Val Ala Ile Val Thr Gly Ala Asn Thr  
 35 40 45

Gly Ile Gly Lys Glu Thr Ala Lys Asp Leu Ala Gln Arg Gly Ala Arg  
 50 55 60

Val Tyr Leu Ala Cys Arg Asp Val Asp Lys Gly Glu Leu Ala Ala Arg  
 65 70 75 80

Glu Ile Gln Ala Val Thr Gly Asn Ser Gln Val Phe Val Arg Lys Leu  
 85 90 95

Asp Leu Ala Asp Thr Lys Ser Ile Arg Ala Phe Ala Lys Asp Phe Leu  
 100 105 110

Ala Glu Glu Lys His Leu His Leu Leu Ile Asn Asn Ala Gly Val Met  
 115 120 125

Met Cys Pro Tyr Ser Lys Thr Ala Asp Gly Phe Glu Met His Ile Gly  
 130 135 140

Val Asn His Leu Gly His Phe Leu Leu Thr His Leu Leu Leu Glu Lys  
 145 150 155 160

Leu Lys Glu Ser Ala Pro Ser Arg Ile Val Asn Leu Ser Ser Leu Gly  
 165 170 175

His His Leu Gly Arg Ile His Phe His Asn Leu Gln Gly Glu Lys Phe  
 180 185 190

Tyr Ser Ala Gly Leu Ala Tyr Cys His Ser Lys Leu Ala Asn Ile Leu  
195 200 205

Phe Thr Lys Glu Leu Ala Lys Arg Leu Lys Gly Ser Gly Val Thr Thr  
210 215 220

Tyr Ser Val His Pro Gly Thr Val His Ser Glu Leu Thr Arg Tyr Ser  
225 230 235 240

Ser Ile Met Arg Trp Leu Trp Gln Leu Phe Phe Val Phe Ile Lys Thr  
245 250 255

Pro Gln Glu Gly Ala Gln Thr Ser Leu Tyr Cys Ala Leu Thr Glu Gly  
260 265 270

Leu Glu Ser Leu Ser Gly Ser His Phe Ser Asp Cys Gln Leu Ala Trp  
275 280 285

Val Ser Tyr Gln Gly Arg Asn Glu Ile Ile Ala Arg Arg Leu Trp Asp  
290 295 300

Val Ser Cys Asp Leu Leu Gly Leu Pro Val Asp Trp  
305 310 315

<210> 425

<211> 353

<212> PRT

<213> Mus musculus

<400> 425

Met Phe Gly Phe Leu Leu Leu Leu Ser Leu Pro Phe Ile Leu Tyr Leu  
1 5 10 15

Val Thr Pro Lys Ile Arg Lys Met Leu Ser Ser Gly Val Cys Thr Ser  
20 25 30

Asn Val Gln Leu Pro Gly Lys Val Ala Ile Val Thr Gly Ala Asn Thr  
35 40 45

Gly Ile Gly Lys Glu Thr Ala Lys Asp Leu Ala Gln Arg Gly Ala Arg  
50 55 60

Val Tyr Leu Ala Cys Arg Asp Val Asp Lys Gly Glu Leu Ala Ala Arg  
65 70 75 80

Glu Ile Gln Ala Val Thr Gly Asn Ser Gln Val Phe Val Arg Lys Leu



340

345

350

Ala

&lt;210&gt; 426

&lt;211&gt; 127

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 426

Thr Gly Lys Ile Ala Ile Val Thr Gly Ala Asn Ser Gly Ile Gly Lys  
 1 5 10 15

Val Val Ser Gln Asp Leu Ala Arg Cys Gly Ala Gln Val Ile Leu Thr  
 20 25 30

Cys Gln Ser Arg Glu Cys Gly Gln Gln Ala Leu Ala Glu Ile Gln Ala  
 35 40 45

Ala Ser Asn Ser Asn Arg Leu Leu Leu Gly Glu Val Asp Leu Ser Ser  
 50 55 60

Met Thr Ser Ile Arg Ser Phe Ala Arg Arg Leu Leu Gln Glu Asn Pro  
 65 70 75 80

Glu Ile His Leu Leu Val Asn Asn Ala Gly Val Ser Gly Phe Arg Arg  
 85 90 95

His Leu Pro Gln Gly Ala Trp Ile Ser Pro Leu Ser Leu Thr Met Leu  
 100 105 110

Gly Pro Phe Cys Ser Gln Ile Tyr Ser Lys Asp Leu Lys Gln Gly  
 115 120 125

&lt;210&gt; 427

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: short chain  
 dehydrogenase domain sequence

&lt;400&gt; 427

Thr Gly Lys Val Ala Leu Val Thr Gly Ala Ser Ser Gly Ile Gly Leu

1	5	10	15
Ala Ile Ala Lys Arg Leu Ala Glu Glu Gly Ala Lys Val Val Val Val			
20	25	30	
Asp Arg Arg Glu Glu Lys Ala Glu Ala Ala Ala Glu Leu Lys Ala Glu			
35	40	45	
Leu Gly Asp Arg Ala Leu Phe Ile Gln Leu Asp Val Thr Asp Glu Glu			
50	55	60	
Ser Ile Lys Ala Ala Val Ala Gln Ala Val Glu Glu Leu Gly Arg Leu			
65	70	75	80
Asp Val Leu Val Asn Asn Ala Gly Ile Leu Gly Pro Gly Glu Pro Phe			
85	90	95	
Glu Leu Ser Glu Asp Asp Trp Glu Arg Val Ile Asp Val Asn Leu Thr			
100	105	110	
Gly Val Phe Leu Leu Thr Gln Ala Val Leu Pro His Met Leu Lys Arg			
115	120	125	

<210> 428  
 <211> 158  
 <212> PRT  
 <213> Homo sapiens

<400> 428
Met Glu Val Met Asp Val Phe Ser Thr Asp Asp Leu Thr Gly Phe Leu
1 5 10 15
Gln Thr Lys Ala Gln Gln Gly Trp Leu Val Ala Gly Thr Val Gly Cys
20 25 30
Pro Ser Thr Glu Asp Pro Gln Ser Ser Glu Ile Pro Ile Met Ser Cys
35 40 45
Leu Glu Phe Leu Trp Glu Arg Pro Thr Leu Leu Val Leu Gly Asn Glu
50 55 60
Gly Ser Gly Leu Ser Gln Glu Val Gln Ala Ser Cys Gln Leu Leu Leu
65 70 75 80

Thr Ile Leu Pro Arg Arg Gln Leu Pro Pro Gly Leu Glu Ser Leu Asn  
85 90 95

Val Ser Val Ala Ala Gly Ile Leu Leu His Ser Ile Cys Ser Gln Arg  
100 105 110

Lys Gly Phe Pro Thr Glu Gly Glu Arg Arg Gln Leu Leu Gln Asp Pro  
115 120 125

Gln Glu Pro Ser Ala Arg Ser Glu Gly Leu Ser Met Ala Gln His Pro  
130 135 140

Gly Leu Ser Ser Gly Pro Glu Lys Glu Arg Gln Asn Glu Gly  
145 150 155

<210> 429

<211> 155

<212> PRT

<213> Homo sapiens

<400> 429

Met Asp Val Phe Ser Thr Asp Asp Leu Thr Gly Phe Leu Gln Thr Lys  
1 5 10 15

Ala Gln Gln Gly Trp Leu Val Ala Gly Thr Val Gly Cys Pro Ser Thr  
20 25 30

Glu Asp Pro Gln Ser Ser Glu Ile Pro Ile Met Ser Cys Leu Glu Phe  
35 40 45

Leu Trp Glu Arg Pro Thr Leu Leu Val Leu Gly Asn Glu Gly Ser Gly  
50 55 60

Leu Ser Gln Glu Val Gln Ala Ser Cys Gln Leu Leu Leu Thr Ile Leu  
65 70 75 80

Pro Arg Arg Gln Leu Pro Pro Gly Leu Glu Ser Leu Asn Val Ser Val  
85 90 95

Ala Ala Gly Ile Leu Leu His Ser Ile Cys Ser Gln Arg Lys Gly Phe  
100 105 110

Pro Thr Glu Gly Glu Arg Arg Gln Leu Leu Gln Asp Pro Gln Glu Pro  
115 120 125

Ser Ala Arg Ser Glu Gly Leu Ser Met Ala Gln His Pro Gly Leu Ser  
130 135 140

Ser Gly Pro Glu Lys Glu Arg Gln Asn Glu Gly  
 145 150 155

<210> 430  
 <211> 124  
 <212> PRT  
 <213> Homo sapiens

<400> 430  
 Met Asp Val Phe Ala Thr Pro Asp Leu Pro Gly Phe Leu Gln Ala Lys  
 1 5 10 15  
 Ala Gln Gln Gly Trp Leu Val Val Gly Thr Val Gly Cys Pro Gly Pro  
 20 25 30  
 Glu Ile Ser Gln Ser Ser Lys Val Pro Ile Thr Ser Cys Leu Glu Phe  
 35 40 45  
 Val Trp Asp Arg Pro Thr Leu Leu Val Leu Gly Ser Glu Gly Ser Gly  
 50 55 60  
 Leu Ser Gln Glu Val Phe Ala Ser Cys Gln Leu Leu Leu Thr Ile Leu  
 65 70 75 80  
 Pro Arg Arg His Leu Pro Pro Gly Leu Glu Ser Leu Asn Val Ser Val  
 85 90 95  
 Ala Thr Gly Ile Leu Leu His Ser Ile Cys Ser Gln Lys Lys Gly Phe  
 100 105 110  
 Pro Val Gln Glu Arg Gly Gln Leu Leu Gln Asp Ser  
 115 120

<210> 431  
 <211> 181  
 <212> PRT  
 <213> Homo sapiens

<400> 431  
 Met Phe Ser Ala Ile Arg Ser Gln His Ser Gly Val Asp Ile Cys Ile  
 1 5 10 15  
 Asn Asn Ala Gly Leu Ala Arg Pro Asp Thr Leu Leu Ser Gly Ser Thr  
 20 25 30



Ser Gly Trp Lys Asp Met Phe Asn Val Asn Val Leu Ala Leu Ser Ile  
 35 40 45  
 Cys Thr Arg Glu Ala Tyr Gln Ser Met Lys Glu Arg Asn Val Asp Asp  
 50 55 60  
 Gly His Ile Ile Asn Ile Asn Ser Met Ser Gly His Arg Val Leu Pro  
 65 70 75 80  
 Leu Ser Val Thr His Phe Tyr Ser Ala Thr Lys Tyr Ala Val Thr Ala  
 85 90 95  
 Leu Thr Glu Gly Leu Arg Gln Glu Leu Arg Glu Ala Gln Thr His Ile  
 100 105 110  
 Arg Ala Thr Cys Ile Ser Pro Gly Val Val Glu Thr Gln Phe Ala Phe  
 115 120 125  
 Lys Leu His Asp Lys Asp Pro Glu Lys Ala Ala Ala Thr Tyr Glu Gln  
 130 135 140  
 Met Lys Cys Leu Lys Pro Glu Asp Val Ala Glu Ala Val Ile Tyr Val  
 145 150 155 160  
 Leu Ser Thr Pro Ala His Ile Gln Ile Gly Asp Ile Gln Met Arg Pro  
 165 170 175  
 Thr Glu Gln Val Thr  
 180

<210> 432

<211> 181

<212> PRT

<213> Mus musculus

<400> 432

Met Ser Ser Ala Ile Arg Ser Gln His Ser Gly Val Asp Ile Cys Ile  
 1 5 10 15  
 Asn Asn Ala Gly Leu Ala Arg Pro Asp Thr Leu Leu Ser Gly Ser Thr  
 20 25 30  
 Ser Gly Trp Lys Asp Met Phe Asn Val Asn Val Leu Ala Leu Ser Ile  
 35 40 45  
 Cys Thr Arg Glu Ala Tyr Gln Ser Met Lys Glu Arg Asn Val Asp Asp  
 50 55 60

Gly His Ile Ile Asn Ile Asn Ser Met Ser Gly His Arg Val Leu Pro  
65 70 75 80

Leu Ser Val Thr His Phe Tyr Ser Ala Thr Lys Tyr Ala Val Thr Ala  
85 90 95

Leu Thr Glu Gly Leu Arg Gln Glu Leu Arg Glu Ala Gln Thr His Ile  
100 105 110

Arg Ala Thr Cys Ile Ser Pro Gly Val Val Glu Thr Gln Phe Ala Phe  
115 120 125

Lys Leu His Asp Lys Asp Pro Glu Lys Ala Ala Ala Thr Tyr Glu Gln  
130 135 140

Met Lys Cys Leu Lys Pro Glu Asp Val Ala Glu Ala Val Ile Tyr Val  
145 150 155 160

Leu Ser Thr Pro Ala His Ile Gln Ile Gly Asp Ile Gln Met Arg Pro  
165 170 175

Thr Glu Gln Val Thr  
180

<210> 433

<211> 182

<212> PRT

<213> Homo sapiens

<400> 433

Asp Arg Leu Ala Leu Val Thr Gly Ala Ser Gly Gly Ile Gly Ala Ala  
1 5 10 15

Val Ala Arg Ala Leu Val Gln Gln Gly Leu Lys Val Val Gly Cys Ala  
20 25 30

Arg Thr Val Gly Asn Ile Glu Glu Leu Ala Ala Glu Cys Lys Ser Ala  
35 40 45

Gly Tyr Pro Gly Thr Leu Ile Pro Tyr Arg Cys Asp Leu Ser Asn Glu  
50 55 60

Glu Asp Ile Leu Ser Met Phe Ser Ala Ile Arg Ser Gln His Ser Gly  
65 70 75 80

Val Asp Ile Cys Ile Asn Asn Ala Gly Leu Ala Arg Pro Asp Thr Leu

	85		90		95
Leu Ser Gly Ser Thr Ser Gly Trp Lys Asp Met Phe Asn Val Asn Val					
	100		105		110
Leu Ala Leu Ser Ile Cys Thr Arg Glu Ala Tyr Gln Ser Met Lys Glu					
	115		120		125
Arg Asn Val Asp Asp Gly His Ile Ile Asn Ile Asn Ser Met Ser Gly					
	130		135		140
His Arg Val Leu Pro Leu Ser Val Thr His Phe Tyr Ser Ala Thr Lys					
	145		150		155
					160
Tyr Ala Val Thr Ala Leu Thr Glu Gly Leu Arg Gln Glu Leu Arg Glu					
	165		170		175
Ala Gln Thr His Ile Arg					
	180				

<210> 434

<211> 174

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: short chain  
dehydrogenase domain sequence

<400> 434

Gly Lys Val Ala Leu Val Thr Gly Ala Ser Ser Gly Ile Gly Leu Ala
1 5 10 15

Ile Ala Lys Arg Leu Ala Glu Glu Gly Ala Lys Val Val Val Val Asp
20 25 30

Arg Arg Glu Glu Lys Ala Glu Ala Ala Ala Glu Leu Lys Ala Glu Leu
35 40 45

Gly Asp Arg Ala Leu Phe Ile Gln Leu Asp Val Thr Asp Glu Glu Ser
50 55 60

Ile Lys Ala Ala Val Ala Gln Ala Val Glu Glu Leu Gly Arg Leu Asp
65 70 75 80

Val Leu Val Asn Asn Ala Gly Ile Leu Gly Pro Gly Glu Pro Phe Glu
85 90 95

Leu Ser Glu Asp Asp Trp Glu Arg Val Ile Asp Val Asn Leu Thr Gly  
 100 105 110

Val Phe Leu Leu Thr Gln Ala Val Leu Pro His Met Leu Lys Arg Ser  
 115 120 125

Gly Gly Arg Ile Val Asn Ile Ser Ser Val Ala Gly Leu Val Pro Ser  
 130 135 140

Pro Gly Leu Ser Ala Tyr Ser Ala Ser Lys Ala Ala Val Val Gly Phe  
 145 150 155 160

Thr Arg Ser Leu Ala Leu Glu Leu Ala Pro His Gly Ile Arg  
 165 170

<210> 435

<211> 115

<212> PRT

<213> Homo sapiens

<400> 435

Leu Val Leu Asp Gly Ile Gln Asp Pro Arg Asn Phe Gly Ala Val Leu  
 1 5 10 15

Arg Ser Ala His Phe Leu Gly Val Asp Lys Thr Lys Ala Gln Gln Gly  
 20 25 30

Trp Leu Val Ala Gly Thr Val Gly Cys Pro Ser Thr Glu Asp Pro Gln  
 35 40 45

Ser Ser Glu Ile Pro Ile Met Ser Cys Leu Glu Phe Leu Trp Glu Arg  
 50 55 60

Pro Thr Leu Leu Val Leu Gly Asn Glu Gly Ser Gly Leu Ser Gln Glu  
 65 70 75 80

Val Gln Ala Ser Cys Gln Leu Leu Leu Thr Ile Leu Pro Arg Arg Gln  
 85 90 95

Leu Pro Pro Gly Leu Glu Ser Leu Asn Val Ser Val Ala Ala Gly Ile  
 100 105 110

Leu Leu His  
 115

<210> 436  
 <211> 140  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: SpoU rRNA  
 Methylase family domain sequence

<400> 436  
 Val Val Leu Asp Glu Val Glu Ile Pro His Asn Ile Gly Ala Ile Ile  
 1 5 10 15  
 Arg Thr Cys Ala Ala Leu Gly Val Asp Gly Ile Val Ile Val Asp Asp  
 20 25 30  
 Gly Phe Ala Leu Leu Asp Arg Arg Leu Arg Arg Ala Ser Leu Gly Tyr  
 35 40 45  
 Ala Glu Ser Val Pro Val Ile Arg Val Asp Asn Leu Glu Glu Phe Leu  
 50 55 60  
 Ala His Leu Lys Glu Ser Gly Ile Trp Leu Leu Thr Thr Ser Gly Asp  
 65 70 75 80  
 Gly Asn Ala Asp Pro Leu Asp Tyr Glu Asp Gly Ala Lys Arg Leu Ala  
 85 90 95  
 Leu Val Phe Gly Ser Glu Thr Thr Gly Leu Ser Asn Leu Ala Leu Glu  
 100 105 110  
 Pro Ala Asp Gln Arg Ile Arg Ile Pro Met Asn Gly Asp Val Arg Ser  
 115 120 125  
 Leu Asn Val Ser Val Ala Val Gly Leu Leu Leu Tyr  
 130 135 140

<210> 437  
 <211> 159  
 <212> PRT  
 <213> Homo sapiens

<400> 437  
 Leu Val Thr Gly Ala Ser Gly Gly Ile Gly Ala Ala Val Ala Arg Ala  
 1 5 10 15  
 Leu Val Gln Gln Gly Leu Lys Val Val Gly Cys Ala Arg Thr Val Gly

	20		25		30
Asn Ile Glu Glu Leu Ala Ala Glu Cys Lys Ser Ala Gly Tyr Pro Gly					
	35		40		45
Thr Leu Ile Pro Tyr Arg Cys Asp Leu Ser Asn Glu Glu Asp Ile Leu					
	50		55		60
Ser Met Phe Ser Ala Ile Arg Ser Gln His Ser Gly Val Asp Ile Cys					
	65		70		75
					80
Ile Asn Asn Ala Gly Leu Ala Arg Pro Asp Thr Leu Leu Ser Gly Ser					
		85		90	95
Thr Ser Gly Trp Lys Asp Met Phe Asn Val Asn Val Leu Ala Leu Ser					
		100		105	110
Ile Cys Thr Arg Glu Ala Tyr Gln Ser Met Lys Glu Arg Asn Val Asp					
		115		120	125
Asp Gly His Ile Ile Asn Ile Asn Ser Met Ser Gly His Arg Val Leu					
		130		135	140
Pro Leu Ser Val Thr His Phe Tyr Ser Ala Thr Lys Tyr Ala Val					
		145		150	155

<210> 438

<211> 152

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: NAD dependent  
epimerase/dehydratase family domain sequence

<400> 438

Leu Val Thr Gly Gly Ala Gly Phe Ile Gly Ser His Leu Val Arg Glu					
1		5		10	15
Leu Leu Asn Asn Gly Asp Asp Lys Val Val Val Leu Asp Asn Leu Thr					
	20		25		30
Tyr Ala Gly Asn Glu Ala Arg Leu Arg Val Ile Glu Gly Gly Pro Arg					
	35		40		45
Tyr Thr Phe Val Lys Gly Asp Ile Cys Asp Arg Asp Leu Leu Asp Lys					
	50		55		60

Val Phe Ala Glu Asn Gln Pro Asp Ala Val Ile His Phe Ala Ala Glu  
65 70 75 80

Ser His Val Asp Arg Ser Ile Glu Lys Pro Leu Ala Tyr Ile Asp Thr  
85 90 95

Asn Val Val Gly Thr Leu Thr Leu Leu Glu Ala Ala Arg Lys Ala Gly  
100 105 110

Val Phe Lys Phe Val Phe Ser Ser Thr Asp Glu Val Tyr Gly Asp Leu  
115 120 125

Pro Ser Ile Pro Ile Thr Glu Asp Thr Pro Tyr Gly Pro Ser Ser Pro  
130 135 140

Tyr Gly Ala Ser Lys Ala Ser Ser  
145 150

<210> 439

<211> 796

<212> PRT

<213> Homo sapiens

<400> 439

Met Glu Ala Gly Gly Glu Arg Phe Leu Arg Gln Arg Gln Val Leu Leu  
1 5 10 15

Leu Phe Val Phe Leu Gly Gly Ser Leu Ala Gly Ser Glu Ser Arg Arg  
20 25 30

Tyr Ser Val Ala Glu Glu Lys Glu Lys Gly Phe Leu Ile Ala Asn Leu  
35 40 45

Ala Lys Asp Leu Gly Leu Arg Val Glu Glu Leu Ala Ala Arg Gly Ala  
50 55 60

Gln Val Val Ser Lys Gly Asn Lys Gln His Phe Gln Leu Ser His Gln  
65 70 75 80

Thr Gly Asp Leu Leu Leu Asn Glu Lys Leu Asp Arg Glu Glu Leu Cys  
85 90 95

Gly Pro Thr Glu Pro Cys Ile Leu His Phe Gln Ile Leu Leu Gln Asn  
100 105 110

Pro Leu Gln Phe Val Thr Asn Glu Leu Arg Ile Ile Asp Val Asn Asp

115							120								125
His	Ser	Pro	Val	Phe	Phe	Glu	Asn	Glu	Met	His	Leu	Lys	Ile	Leu	Glu
130						135					140				
Ser	Thr	Leu	Pro	Gly	Thr	Val	Ile	Pro	Leu	Gly	Asn	Ala	Glu	Asp	Leu
145					150					155					160
Asp	Val	Gly	Arg	Asn	Ser	Leu	Gln	Asn	Tyr	Thr	Ile	Thr	Pro	Asn	Ser
				165					170					175	
His	Phe	His	Val	Leu	Thr	Arg	Ser	Arg	Arg	Asp	Gly	Arg	Lys	Tyr	Pro
			180					185					190		
Glu	Leu	Val	Leu	Asp	Lys	Ala	Leu	Asp	Arg	Glu	Glu	Gln	Pro	Glu	Leu
		195					200					205			
Ser	Leu	Thr	Leu	Thr	Ala	Leu	Asp	Gly	Gly	Ser	Pro	Pro	Arg	Ser	Gly
	210					215					220				
Thr	Ala	Gln	Ile	Asn	Ile	Gln	Val	Leu	Asp	Ile	Asn	Asp	Asn	Ala	Pro
225					230					235					240
Glu	Phe	Ala	Gln	Pro	Leu	Tyr	Glu	Val	Ala	Val	Leu	Glu	Asn	Thr	Pro
				245					250					255	
Val	Asn	Ser	Val	Ile	Val	Thr	Val	Ser	Ala	Ser	Asp	Leu	Asp	Thr	Gly
			260					265						270	
Ser	Phe	Gly	Thr	Ile	Ser	Tyr	Ala	Phe	Phe	His	Ala	Ser	Glu	Glu	Ile
		275					280					285			
Arg	Lys	Thr	Phe	Gln	Leu	Asn	Pro	Ile	Thr	Gly	Asp	Met	Gln	Leu	Val
	290					295					300				
Lys	Tyr	Leu	Asn	Phe	Glu	Ala	Ile	Asn	Ser	Tyr	Glu	Val	Asp	Ile	Glu
305					310					315					320
Ala	Lys	Asp	Gly	Gly	Gly	Leu	Ser	Gly	Lys	Ser	Thr	Val	Ile	Val	Gln
			325						330					335	
Val	Val	Asp	Val	Asn	Asp	Asn	Pro	Pro	Glu	Leu	Thr	Leu	Ser	Ser	Val
			340					345					350		
Asn	Ser	Pro	Ile	Pro	Glu	Asn	Ser	Gly	Glu	Thr	Val	Leu	Ala	Val	Phe
		355					360					365			
Ser	Val	Ser	Asp	Leu	Asp	Ser	Gly	Asp	Asn	Gly	Arg	Val	Met	Cys	Ser



370		375		380
Ile Glu Asn Asn Leu Pro Phe Phe Leu Lys Pro Ser Val Glu Asn Phe				
385		390		400
Tyr Thr Leu Val Ser Glu Gly Ala Leu Asp Arg Glu Thr Arg Ser Glu				
	405		410	415
Tyr Asn Ile Thr Ile Thr Ile Thr Asp Leu Gly Thr Pro Arg Leu Lys				
	420		425	430
Thr Lys Tyr Asn Ile Thr Val Leu Val Ser Asp Val Asn Asp Asn Ala				
	435		440	445
Pro Ala Phe Thr Gln Ile Ser Tyr Thr Leu Phe Val Arg Glu Asn Asn				
	450		455	460
Ser Pro Ala Leu His Ile Gly Ser Val Ser Ala Thr Asp Arg Asp Ser				
465		470		480
Gly Thr Asn Ala Gln Val Thr Tyr Ser Leu Leu Pro Pro Gln Asp Pro				
	485		490	495
His Leu Pro Leu Ser Ser Leu Val Ser Ile Asn Ala Asp Asn Gly His				
	500		505	510
Leu Phe Ala Leu Arg Ser Leu Asp Tyr Glu Ala Leu Gln Ala Phe Glu				
	515		520	525
Phe Arg Val Gly Ala Thr Asp Arg Gly Ser Pro Ala Leu Ser Ser Glu				
	530		535	540
Ala Leu Val Arg Val Leu Val Leu Asp Ala Asn Asp Asn Ser Pro Phe				
545		550		560
Val Leu Tyr Pro Leu Gln Asn Gly Ser Ala Pro Cys Thr Glu Leu Val				
	565		570	575
Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val Ala Val				
	580		585	590
Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu Leu Lys				
	595		600	605
Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly Glu Val				
	610		615	620
Arg Thr Ala Arg Leu Leu Ser Glu Arg Asp Ala Ala Lys His Arg Leu				

625		630		635		640
Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala Thr Ala						
	645		650		655	
Thr Leu His Val Leu Leu Val Asp Gly Phe Ser Gln Pro Tyr Leu Pro						
	660		665		670	
Leu Pro Glu Ala Ala Pro Ala Gln Ala Gln Ala Asp Leu Leu Thr Val						
	675		680		685	
Tyr Leu Val Val Ala Leu Ala Ser Val Ser Ser Leu Phe Leu Phe Ser						
	690		695		700	
Val Leu Leu Phe Val Ala Val Arg Leu Cys Arg Arg Ser Arg Ala Ala						
705		710		715		720
Ser Val Gly Arg Cys Ser Val Pro Glu Gly Pro Phe Pro Gly Gln Met						
	725		730		735	
Val Asp Val Ser Gly Thr Gly Thr Leu Ser Gln Ser Tyr Gln Tyr Glu						
	740		745		750	
Val Cys Leu Thr Gly Gly Ser Gly Thr Asn Glu Phe Lys Phe Leu Lys						
	755		760		765	
Pro Ile Ile Pro Asn Phe Val Ala Gln Gly Ala Glu Arg Val Ser Glu						
	770		775		780	
Ala Asn Pro Ser Phe Arg Lys Ser Phe Glu Phe Ser						
785		790		795		

<210> 440

<211> 798

<212> PRT

<213> Homo sapiens

<400> 440

Met Glu Ala Gly Glu Gly Lys Glu Arg Val Pro Lys Gln Arg Gln Val														
1				5				10					15	
Leu Ile Phe Phe Val Leu Leu Gly Ile Ala Gln Ala Ser Cys Gln Pro														
			20				25						30	
Arg His Tyr Ser Val Ala Glu Glu Thr Glu Ser Gly Ser Phe Val Ala														
	35					40					45			



Leu Arg Gln Lys Leu Asp Phe Glu Ser Ile Gln Thr Tyr Thr Val Asn  
 305 310 315 320  
 Ile Gln Ala Thr Asp Gly Gly Gly Leu Ser Gly Thr Cys Val Val Phe  
 325 330 335  
 Val Gln Val Met Asp Leu Asn Asp Asn Pro Pro Glu Leu Thr Met Ser  
 340 345 350  
 Thr Leu Ile Asn Gln Ile Pro Glu Asn Leu Gln Asp Thr Leu Ile Ala  
 355 360 365  
 Val Phe Ser Val Ser Asp Pro Asp Ser Gly Asp Asn Gly Arg Met Val  
 370 375 380  
 Cys Ser Ile Gln Asp Asp Leu Pro Phe Phe Leu Lys Pro Ser Val Glu  
 385 390 395 400  
 Asn Phe Tyr Thr Leu Val Ile Ser Thr Ala Leu Asp Arg Glu Thr Arg  
 405 410 415  
 Ser Glu Tyr Asn Ile Thr Ile Thr Val Thr Asp Phe Gly Thr Pro Arg  
 420 425 430  
 Leu Lys Thr Glu His Asn Ile Thr Val Leu Val Ser Asp Val Asn Asp  
 435 440 445  
 Asn Ala Pro Ala Phe Thr Gln Thr Ser Tyr Thr Leu Phe Val Arg Glu  
 450 455 460  
 Asn Asn Ser Pro Ala Leu His Ile Gly Ser Val Ser Ala Thr Asp Arg  
 465 470 475 480  
 Asp Ser Gly Thr Asn Ala Gln Val Thr Tyr Ser Leu Leu Pro Pro Gln  
 485 490 495  
 Asp Pro His Leu Pro Leu Ala Ser Leu Val Ser Ile Asn Ala Asp Asn  
 500 505 510  
 Gly His Leu Phe Ala Leu Gln Ser Leu Asp Tyr Glu Ala Leu Gln Ala  
 515 520 525  
 Phe Glu Phe Arg Val Gly Ala Ala Asp Arg Gly Ser Pro Ala Leu Ser  
 530 535 540  
 Ser Glu Ala Leu Val Arg Val Leu Val Leu Asp Ala Asn Asp Asn Ser  
 545 550 555 560

Pro Phe Val Leu Tyr Pro Leu Gln Asn Gly Ser Ala Pro Cys Thr Glu  
565 570 575

Leu Val Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val  
580 585 590

Ala Val Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu  
595 600 605

Leu Lys Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly  
610 615 620

Glu Val Arg Thr Ala Arg Leu Leu Arg Glu Arg Asp Ala Ala Lys Gln  
625 630 635 640

Arg Leu Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala  
645 650 655

Thr Ala Thr Leu His Val Leu Leu Val Asp Gly Phe Ser Gln Pro Tyr  
660 665 670

Leu Leu Leu Pro Glu Ala Ala Pro Ala Gln Ala Gln Ala Asp Leu Leu  
675 680 685

Thr Val Tyr Leu Val Val Ala Leu Ala Ser Val Ser Ser Leu Phe Leu  
690 695 700

Phe Ser Val Leu Leu Phe Val Ala Val Arg Leu Cys Arg Arg Ser Arg  
705 710 715 720

Ala Ala Ser Val Gly Arg Cys Ser Val Pro Glu Gly Pro Phe Pro Gly  
725 730 735

Gln Met Val Asp Val Ser Gly Thr Gly Thr Leu Ser Gln Ser Tyr Gln  
740 745 750

Tyr Glu Val Cys Leu Thr Gly Gly Ser Gly Thr Asn Glu Phe Lys Phe  
755 760 765

Leu Lys Pro Ile Ile Pro Asn Phe Val Ala Gln Gly Ala Glu Arg Val  
770 775 780

Ser Glu Ala Asn Pro Ser Phe Arg Lys Ser Phe Glu Phe Thr  
785 790 795

<210> 441

<211> 776

<212> PRT

<213> Homo sapiens

<400> 441

Met Glu Ile Gly Trp Met His Asn Arg Arg Gln Arg Gln Val Leu Val  
1 5 10 15

Phe Phe Val Leu Leu Ser Leu Ser Gly Ala Gly Ala Glu Leu Gly Ser  
20 25 30

Tyr Ser Val Val Glu Glu Thr Glu Arg Gly Ser Phe Val Ala Asn Leu  
35 40 45

Gly Lys Asp Leu Gly Leu Gly Leu Thr Glu Met Ser Thr Arg Lys Ala  
50 55 60

Arg Ile Ile Ser Gln Gly Asn Lys Gln His Leu Gln Leu Lys Ala Gln  
65 70 75 80

Thr Gly Asp Leu Leu Ile Asn Glu Lys Leu Asp Arg Glu Glu Leu Cys  
85 90 95

Gly Pro Thr Glu Pro Cys Ile Leu His Phe Gln Val Leu Met Glu Asn  
100 105 110

Pro Leu Glu Ile Phe Gln Ala Glu Leu Arg Val Ile Asp Ile Asn Asp  
115 120 125

His Ser Pro Met Phe Thr Glu Lys Glu Met Ile Leu Lys Ile Pro Glu  
130 135 140

Asn Ser Pro Leu Gly Thr Glu Phe Pro Leu Asn His Ala Leu Asp Leu  
145 150 155 160

Asp Val Gly Ser Asn Asn Val Gln Asn Tyr Lys Ile Ser Pro Ser Ser  
165 170 175

His Phe Arg Val Leu Ile His Glu Phe Arg Asp Gly Arg Lys Tyr Pro  
180 185 190

Glu Leu Val Leu Asp Lys Glu Leu Asp Arg Glu Glu Glu Pro Gln Leu  
195 200 205

Arg Leu Thr Leu Thr Ala Leu Asp Gly Gly Ser Pro Pro Arg Ser Gly  
210 215 220

Thr Ala Gln Val Arg Ile Glu Val Val Asp Ile Asn Asp Asn Ala Pro  
225 230 235 240

Glu Phe Glu Gln Pro Ile Tyr Lys Val Gln Ile Pro Glu Asn Ser Pro  
 245 250 255  
 Leu Gly Ser Leu Val Ala Thr Val Ser Ala Arg Asp Leu Asp Gly Gly  
 260 265 270  
 Ala Asn Gly Lys Ile Ser Tyr Thr Leu Phe Gln Pro Ser Glu Asp Ile  
 275 280 285  
 Ser Lys Thr Leu Glu Val Asn Pro Met Thr Gly Glu Val Arg Leu Arg  
 290 295 300  
 Lys Gln Val Asp Phe Glu Met Val Thr Ser Tyr Glu Val Arg Ile Lys  
 305 310 315 320  
 Ala Thr Asp Gly Gly Gly Leu Ser Gly Lys Cys Thr Leu Leu Leu Gln  
 325 330 335  
 Val Val Asp Val Asn Asp Asn Pro Pro Gln Val Thr Met Ser Ala Leu  
 340 345 350  
 Thr Ser Pro Ile Pro Glu Asn Ser Pro Glu Ile Val Val Ala Val Phe  
 355 360 365  
 Ser Val Ser Asp Pro Asp Ser Gly Asn Asn Gly Lys Thr Ile Ser Ser  
 370 375 380  
 Ile Gln Glu Asp Leu Pro Phe Leu Leu Lys Pro Ser Val Lys Asn Phe  
 385 390 395 400  
 Tyr Thr Leu Val Thr Glu Arg Ala Leu Asp Arg Glu Ala Arg Ala Glu  
 405 410 415  
 Tyr Asn Ile Thr Leu Thr Val Thr Asp Met Gly Thr Pro Arg Leu Lys  
 420 425 430  
 Thr Glu His Asn Ile Thr Val Gln Ile Ser Asp Val Asn Asp Asn Ala  
 435 440 445  
 Pro Thr Phe Thr Gln Thr Ser Tyr Thr Leu Phe Val Arg Glu Asn Asn  
 450 455 460  
 Ser Pro Ala Leu His Ile Gly Ser Val Ser Ala Thr Asp Arg Asp Ser  
 465 470 475 480  
 Gly Thr Asn Ala Gln Val Thr Tyr Ser Leu Leu Pro Pro Gln Asp Pro  
 485 490 495

His Leu Pro Leu Ala Ser Leu Val Ser Ile Asn Ala Asp Asn Gly His  
 500 505 510

Leu Phe Ala Leu Arg Ser Leu Asp Tyr Glu Ala Leu Gln Ala Phe Glu  
 515 520 525

Phe Arg Val Gly Ala Thr Asp Arg Gly Ser Pro Ala Leu Ser Arg Glu  
 530 535 540

Ala Leu Val Arg Val Leu Val Leu Asp Ala Asn Asp Asn Ser Pro Phe  
 545 550 555 560

Val Leu Tyr Pro Leu Gln Asn Gly Ser Ala Pro Cys Thr Glu Leu Val  
 565 570 575

Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val Ala Val  
 580 585 590

Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu Leu Lys  
 595 600 605

Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly Glu Val  
 610 615 620

Arg Thr Ala Arg Leu Leu Ser Glu Arg Asp Ala Ala Lys Gln Arg Leu  
 625 630 635 640

Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala Thr Ala  
 645 650 655

Thr Leu His Val Leu Leu Val Asp Gly Phe Ser Gln Pro Phe Leu Pro  
 660 665 670

Leu Pro Glu Ala Ala Pro Gly Gln Thr Gln Ala Asn Ser Leu Thr Val  
 675 680 685

Tyr Leu Val Val Ala Leu Ala Ser Val Ser Ser Leu Phe Leu Phe Ser  
 690 695 700

Val Leu Leu Phe Val Ala Val Arg Leu Cys Arg Arg Ser Arg Ala Ala  
 705 710 715 720

Ser Val Gly Arg Cys Ser Met Pro Glu Gly Pro Phe Pro Gly Arg Leu  
 725 730 735

Val Asp Val Ser Gly Thr Gly Thr Leu Ser Gln Ser Tyr Gln Tyr Glu  
 740 745 750



Val Cys Leu Thr Gly Gly Ser Glu Thr Ser Glu Phe Lys Phe Leu Lys  
755 760 765

Pro Ile Ile Pro Asn Phe Ser Pro  
770 775

<210> 442

<211> 776

<212> PRT

<213> Homo sapiens

<400> 442

Met Glu Ile Gly Trp Met His Asn Arg Arg Gln Arg Gln Val Leu Val  
1 5 10 15

Phe Phe Val Leu Leu Ser Leu Ser Gly Ala Gly Ala Glu Leu Gly Ser  
20 25 30

Tyr Ser Val Val Glu Glu Thr Glu Arg Gly Ser Phe Val Ala Asn Leu  
35 40 45

Gly Lys Asp Leu Gly Leu Gly Leu Thr Glu Met Ser Thr Arg Lys Ala  
50 55 60

Arg Ile Ile Ser Gln Gly Asn Lys Gln His Leu Gln Leu Lys Ala Gln  
65 70 75 80

Thr Gly Asp Leu Leu Ile Asn Glu Lys Leu Asp Arg Glu Glu Leu Cys  
85 90 95

Gly Pro Thr Glu Pro Cys Ile Leu His Phe Gln Val Leu Met Glu Asn  
100 105 110

Pro Leu Glu Ile Phe Gln Ala Glu Leu Arg Val Ile Asp Ile Asn Asp  
115 120 125

His Ser Pro Met Phe Thr Glu Lys Glu Met Ile Leu Lys Ile Pro Glu  
130 135 140

Asn Ser Pro Leu Gly Thr Glu Phe Pro Leu Asn His Ala Leu Asp Leu  
145 150 155 160

Asp Val Gly Ser Asn Asn Val Gln Asn Tyr Lys Ile Ser Pro Ser Ser  
165 170 175

His Phe Arg Val Leu Ile His Glu Phe Arg Asp Gly Arg Lys Tyr Pro

180	185	190
Glu Leu Val Leu Asp Lys Glu Leu Asp Arg Glu Glu Glu Pro Gln Leu		
195	200	205
Arg Leu Thr Leu Thr Ala Leu Asp Gly Gly Ser Pro Pro Arg Ser Gly		
210	215	220
Thr Ala Gln Val Arg Ile Glu Val Val Asp Ile Asn Asp Asn Ala Pro		
225	230	235
Glu Phe Glu Gln Pro Ile Tyr Lys Val Gln Ile Pro Glu Asn Ser Pro		
245	250	255
Leu Gly Ser Leu Val Ala Thr Val Ser Ala Arg Asp Leu Asp Gly Gly		
260	265	270
Ala Asn Gly Lys Ile Ser Tyr Thr Leu Phe Gln Pro Ser Glu Asp Ile		
275	280	285
Ser Lys Thr Leu Glu Val Asn Pro Met Thr Gly Glu Val Arg Leu Arg		
290	295	300
Lys Gln Val Asp Phe Glu Met Val Thr Ser Tyr Glu Val Arg Ile Lys		
305	310	315
Ala Thr Asp Gly Gly Gly Leu Ser Gly Lys Cys Thr Leu Leu Leu Gln		
325	330	335
Val Val Asp Val Asn Asp Asn Pro Pro Gln Val Thr Met Ser Ala Leu		
340	345	350
Thr Ser Pro Ile Pro Glu Asn Ser Pro Glu Ile Val Val Ala Val Phe		
355	360	365
Ser Val Ser Asp Pro Asp Ser Gly Asn Asn Gly Lys Thr Ile Ser Ser		
370	375	380
Ile Gln Glu Asp Leu Pro Phe Leu Leu Lys Pro Ser Val Lys Asn Phe		
385	390	395
Tyr Thr Leu Val Thr Glu Arg Ala Leu Asp Arg Glu Ala Arg Ala Glu		
405	410	415
Tyr Asn Ile Thr Leu Thr Val Thr Asp Met Gly Thr Pro Arg Leu Lys		
420	425	430
Thr Glu His Asn Ile Thr Val Gln Ile Ser Asp Val Asn Asp Asn Ala		

435		440		445
Pro Thr Phe Thr Gln Thr Ser Tyr Thr Leu Phe Val Arg Glu Asn Asn				
450		455		460
Ser Pro Ala Leu His Ile Gly Ser Val Ser Ala Thr Asp Arg Asp Ser				
465		470		475 480
Gly Thr Asn Ala Gln Val Thr Tyr Ser Leu Leu Pro Pro Gln Asp Pro				
	485		490	495
His Leu Pro Leu Ala Ser Leu Val Ser Ile Asn Ala Asp Asn Gly His				
	500		505	510
Leu Phe Ala Leu Arg Ser Leu Asp Tyr Glu Ala Leu Arg Glu Phe Glu				
	515		520	525
Phe Arg Val Ser Ala Thr Asp Arg Gly Ser Pro Ala Leu Ser Ser Glu				
	530		535	540
Ala Leu Val Arg Val Leu Val Leu Asp Ala Asn Asp Asn Ser Pro Phe				
	545		550	555 560
Val Leu Tyr Pro Leu Gln Asn Gly Ser Ala Pro Cys Thr Glu Leu Val				
	565		570	575
Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val Ala Val				
	580		585	590
Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu Leu Lys				
	595		600	605
Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly Glu Val				
	610		615	620
Arg Thr Ala Arg Leu Leu Ser Glu Arg Asp Ala Ala Lys Gln Arg Leu				
	625		630	635 640
Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala Thr Ala				
	645		650	655
Thr Leu His Val Leu Leu Val Asp Gly Phe Ser Gln Pro Phe Leu Pro				
	660		665	670
Leu Pro Glu Ala Ala Pro Gly Gln Thr Gln Ala Asn Ser Leu Thr Val				
	675		680	685
Tyr Leu Val Val Ala Leu Ala Ser Val Ser Ser Leu Phe Leu Phe Ser				

690		695		700
Val Leu Leu Phe Val Ala Val Arg Leu Cys Arg Arg Ser Arg Ala Ala				
705		710		715
				720
Ser Val Gly Arg Cys Ser Met Pro Glu Gly Pro Phe Pro Gly Arg Leu				
		725		730
				735
Val Asp Val Ser Gly Thr Gly Thr Leu Ser Gln Ser Tyr Gln Tyr Glu				
		740		745
				750
Val Cys Leu Thr Gly Gly Ser Glu Thr Ser Glu Phe Lys Phe Leu Lys				
		755		760
				765
Pro Ile Ile Pro Asn Phe Ser Pro				
		770		775

<210> 443  
 <211> 787  
 <212> PRT  
 <213> Homo sapiens

<400> 443
Ser Phe Cys Glu Pro Thr Phe Gln Glu Lys Ala Met Glu Ile Gly Trp
1 5 10 15
Met His Asn Arg Arg Gln Arg Gln Val Leu Val Phe Phe Val Leu Leu
20 25 30
Ser Leu Ser Gly Ala Gly Ala Glu Leu Gly Ser Tyr Ser Val Val Glu
35 40 45
Glu Thr Glu Arg Gly Ser Phe Val Ala Asn Leu Gly Lys Asp Leu Gly
50 55 60
Leu Gly Leu Thr Glu Met Ser Thr Arg Lys Ala Arg Ile Ile Ser Gln
65 70 75 80
Gly Asn Lys Gln His Leu Gln Leu Lys Ala Gln Thr Gly Asp Leu Leu
85 90 95
Ile Asn Glu Lys Leu Asp Arg Glu Glu Leu Cys Gly Pro Thr Glu Pro
100 105 110
Cys Ile Leu His Phe Gln Val Leu Met Glu Asn Pro Leu Glu Ile Phe
115 120 125

Gln Ala Glu Leu Arg Val Ile Asp Ile Asn Asp His Ser Pro Met Phe  
 130 135 140

Thr Glu Lys Glu Met Ile Leu Lys Ile Pro Glu Asn Ser Pro Leu Gly  
 145 150 155 160

Thr Glu Phe Pro Leu Asn His Ala Leu Asp Leu Asp Val Gly Ser Asn  
 165 170 175

Asn Val Gln Asn Tyr Lys Ile Ser Pro Ser Ser His Phe Arg Val Leu  
 180 185 190

Ile His Glu Phe Arg Asp Gly Arg Lys Tyr Pro Glu Leu Val Leu Asp  
 195 200 205

Lys Glu Leu Asp Arg Glu Glu Glu Pro Gln Leu Arg Leu Thr Leu Thr  
 210 215 220

Ala Leu Asp Gly Gly Ser Pro Pro Arg Ser Gly Thr Ala Gln Val Arg  
 225 230 235 240

Ile Glu Val Val Asp Ile Asn Asp Asn Ala Pro Glu Phe Glu Gln Pro  
 245 250 255

Ile Tyr Lys Val Gln Ile Pro Glu Asn Ser Pro Leu Gly Ser Leu Val  
 260 265 270

Ala Thr Val Ser Ala Arg Asp Leu Asp Gly Gly Ala Asn Gly Lys Ile  
 275 280 285

Ser Tyr Thr Leu Phe Gln Pro Ser Glu Asp Ile Ser Lys Thr Leu Glu  
 290 295 300

Val Asn Pro Met Thr Gly Glu Val Arg Leu Arg Lys Gln Val Asp Phe  
 305 310 315 320

Glu Met Val Thr Ser Tyr Glu Val Arg Ile Lys Ala Thr Asp Gly Gly  
 325 330 335

Gly Leu Ser Gly Lys Cys Thr Leu Leu Leu Gln Val Val Asp Val Asn  
 340 345 350

Asp Asn Pro Pro Gln Val Thr Met Ser Ala Leu Thr Ser Pro Ile Pro  
 355 360 365

Glu Asn Ser Pro Glu Ile Val Val Ala Val Phe Ser Val Ser Asp Pro  
 370 375 380

Asp	Ser	Gly	Asn	Asn	Gly	Lys	Thr	Ile	Ser	Ser	Ile	Gln	Glu	Asp	Leu	385	390	395	400
Pro	Phe	Leu	Leu	Lys	Pro	Ser	Val	Lys	Asn	Phe	Tyr	Thr	Leu	Val	Thr	405	410	415	
Glu	Arg	Ala	Leu	Asp	Arg	Glu	Ala	Arg	Ala	Glu	Tyr	Asn	Ile	Thr	Leu	420	425	430	
Thr	Val	Thr	Asp	Met	Gly	Thr	Pro	Arg	Leu	Lys	Thr	Glu	His	Asn	Ile	435	440	445	
Thr	Val	Gln	Ile	Ser	Asp	Val	Asn	Asp	Asn	Ala	Pro	Thr	Phe	Thr	Gln	450	455	460	
Thr	Ser	Tyr	Thr	Leu	Phe	Val	Arg	Glu	Asn	Asn	Ser	Pro	Ala	Leu	His	465	470	475	480
Ile	Gly	Ser	Val	Ser	Ala	Thr	Asp	Arg	Asp	Ser	Gly	Ile	Asn	Ala	Gln	485	490	495	
Val	Thr	Tyr	Ser	Leu	Leu	Pro	Pro	Gln	Asp	Pro	His	Leu	Pro	Leu	Ala	500	505	510	
Ser	Leu	Val	Ser	Ile	Asn	Ala	Asp	Asn	Gly	His	Leu	Phe	Ala	Leu	Arg	515	520	525	
Ser	Leu	Asp	Tyr	Glu	Ala	Leu	Arg	Glu	Phe	Glu	Phe	Arg	Val	Ser	Ala	530	535	540	
Thr	Asp	Arg	Gly	Ser	Pro	Ala	Leu	Ser	Ser	Glu	Ala	Leu	Val	Arg	Val	545	550	555	560
Leu	Val	Leu	Asp	Ala	Asn	Asp	Asn	Ser	Pro	Phe	Val	Leu	Tyr	Pro	Leu	565	570	575	
Gln	Asn	Gly	Ser	Ala	Pro	Cys	Thr	Glu	Leu	Val	Pro	Arg	Ala	Ala	Glu	580	585	590	
Pro	Gly	Tyr	Leu	Val	Thr	Lys	Val	Val	Ala	Val	Asp	Gly	Asp	Ser	Gly	595	600	605	
Gln	Asn	Ala	Trp	Leu	Ser	Tyr	Gln	Leu	Leu	Lys	Ala	Thr	Glu	Pro	Gly	610	615	620	
Leu	Phe	Gly	Val	Trp	Ala	His	Asn	Gly	Glu	Val	Arg	Thr	Ala	Arg	Leu	625	630	635	640

Leu Ser Glu Arg Asp Ala Ala Lys His Arg Leu Val Val Leu Val Lys  
645 650 655

Asp Asn Gly Glu Pro Pro Cys Ser Ala Thr Ala Thr Leu His Val Leu  
660 665 670

Leu Val Asp Gly Phe Ser Gln Pro Phe Leu Pro Leu Pro Glu Ala Ala  
675 680 685

Pro Gly Gln Thr Gln Ala Asn Ser Leu Thr Val Tyr Leu Val Val Ala  
690 695 700

Leu Ala Ser Val Ser Ser Leu Phe Leu Phe Ser Val Leu Leu Phe Val  
705 710 715 720

Val Val Arg Leu Cys Arg Arg Ser Arg Ala Ala Ser Val Gly Arg Cys  
725 730 735

Ser Met Pro Glu Gly Pro Phe Pro Gly Arg Leu Val Asp Val Ser Gly  
740 745 750

Thr Gly Thr Leu Ser Gln Ser Tyr Gln Tyr Glu Val Cys Leu Thr Gly  
755 760 765

Gly Ser Glu Thr Ser Glu Phe Lys Phe Leu Lys Pro Ile Ile Pro Asn  
770 775 780

Phe Ser Pro  
785

<210> 444

<211> 87

<212> PRT

<213> Homo sapiens

<400> 444

Val Ser Ala Thr Asp Arg Asp Ser Gly Thr Asn Ala Gln Val Thr Tyr  
1 5 10 15

Ser Leu Leu Pro Pro Gln Asp Pro His Leu Pro Leu Ser Ser Leu Val  
20 25 30

Ser Ile Asn Ala Asp Asn Gly His Leu Phe Ala Leu Arg Ser Leu Asp  
35 40 45

Tyr Glu Ala Leu Gln Ala Phe Glu Phe Arg Val Gly Ala Thr Asp Arg  
50 55 60

Gly Ser Pro Ala Leu Ser Ser Glu Ala Leu Val Arg Val Leu Val Leu  
65 70 75 80

Asp Ala Asn Asp Asn Ser Pro  
85

<210> 445

<211> 82

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin  
repeats domain sequence

<400> 445

Val Ser Ala Thr Asp Ala Asp Ser Gly Glu Asn Gly Lys Val Thr Tyr  
1 5 10 15

Ser Ile Leu Ser Gly Asn Asp Gly Gly Leu Phe Ser Ile Asp Pro Glu  
20 25 30

Thr Gly Ile Ile Thr Thr Thr Lys Pro Leu Asp Arg Glu Glu Gln Ser  
35 40 45

Glu Tyr Thr Leu Thr Val Glu Ala Thr Asp Gly Gly Gly Pro Pro Leu  
50 55 60

Ser Ser Thr Ala Thr Val Thr Val Thr Val Leu Asp Val Asn Asp Asn  
65 70 75 80

Ala Pro

<210> 446

<211> 82

<212> PRT

<213> Homo sapiens

<400> 446

Val Ser Ala Arg Asp Leu Asp Ile Gly Thr Asn Gly Glu Ile Ser Tyr  
1 5 10 15

Ala Phe Ser Gln Ala Ser Glu Asp Ile Arg Lys Thr Phe Arg Leu Ser  
20 25 30



Ala Lys Ser Gly Glu Leu Leu Leu Arg Gln Lys Leu Asp Phe Glu Ser  
35 40 45

Ile Gln Thr Tyr Thr Val Asn Ile Gln Ala Thr Asp Gly Gly Gly Leu  
50 55 60

Ser Gly Lys Ser Thr Val Ile Val Gln Val Val Asp Val Asn Asp Asn  
65 70 75 80

Pro Pro

<210> 447

<211> 85

<212> PRT

<213> Homo sapiens

<400> 447

Asn Ala Glu Asp Leu Asp Val Gly Arg Asn Ser Leu Gln Asn Tyr Thr  
1 5 10 15

Ile Thr Pro Asn Ser His Phe His Val Pro Thr Arg Ser Arg Arg Asp  
20 25 30

Gly Arg Lys Tyr Pro Glu Leu Val Leu Asn Arg Ala Leu Asp Arg Glu  
35 40 45

Glu Gln Pro Glu Ile Arg Leu Thr Leu Thr Ala Leu Asp Gly Gly Ser  
50 55 60

Pro Pro Arg Ser Gly Thr Ala Leu Val Arg Ile Glu Val Val Asp Ile  
65 70 75 80

Asn Asp Asn Val Pro  
85

<210> 448

<211> 81

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin  
repeats domain sequence

<400> 448

Ser Ala Thr Asp Ala Asp Ser Gly Glu Asn Gly Lys Val Thr Tyr Ser  
1 5 10 15

Ile Leu Ser Gly Asn Asp Gly Gly Leu Phe Ser Ile Asp Pro Glu Thr  
20 25 30

Gly Ile Ile Thr Thr Thr Lys Pro Leu Asp Arg Glu Glu Gln Ser Glu  
35 40 45

Tyr Thr Leu Thr Val Glu Ala Thr Asp Gly Gly Gly Pro Pro Leu Ser  
50 55 60

Ser Thr Ala Thr Val Thr Val Thr Val Leu Asp Val Asn Asp Asn Ala  
65 70 75 80

Pro

<210> 449

<211> 81

<212> PRT

<213> Homo sapiens

<400> 449

Ser Val Ser Asp Leu Asp Ser Gly Asp Asn Gly Arg Val Met Cys Ser  
1 5 10 15

Ile Glu Asn Asn Leu Pro Phe Phe Leu Lys Pro Ser Val Glu Asn Phe  
20 25 30

Tyr Thr Leu Val Ser Glu Gly Ala Leu Asp Arg Glu Thr Arg Ser Glu  
35 40 45

Tyr Asn Ile Thr Ile Thr Ile Thr Asp Leu Gly Thr Pro Arg Leu Lys  
50 55 60

Thr Lys Tyr Asn Ile Thr Val Leu Val Ser Asp Val Asn Asp Asn Ala  
65 70 75 80

Pro

<210> 450

<211> 76

<212> PRT

<213> Homo sapiens

<400> 450

Val Val Ala Val Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr  
1 5 10 15

Gln Leu Leu Lys Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His  
20 25 30

Asn Gly Glu Val Arg Thr Ala Arg Leu Leu Arg Glu Arg Asp Ala Ala  
35 40 45

Lys Gln Arg Leu Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg  
50 55 60

Ser Ala Thr Ala Thr Leu His Val Leu Leu Val Asp  
65 70 75

<210> 451

<211> 76

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin  
repeats domain sequence

<400> 451

Val Ser Ala Thr Asp Ala Asp Ser Gly Glu Asn Gly Lys Val Thr Tyr  
1 5 10 15

Ser Ile Leu Ser Gly Asn Asp Gly Gly Leu Phe Ser Ile Asp Pro Glu  
20 25 30

Thr Gly Ile Ile Thr Thr Thr Lys Pro Leu Asp Arg Glu Glu Gln Ser  
35 40 45

Glu Tyr Thr Leu Thr Val Glu Ala Thr Asp Gly Gly Gly Pro Pro Leu  
50 55 60

Ser Ser Thr Ala Thr Val Thr Val Thr Val Leu Asp  
65 70 75

<210> 452

<211> 91

<212> PRT

<213> Homo sapiens

<400> 452

Tyr Glu Val Gln Ile Pro Glu Asp Ser Pro Val Gly Ser Gln Val Ala  
1 5 10 15

Ile Val Ser Ala Arg Asp Leu Asp Ile Gly Thr Asn Gly Glu Ile Ser  
20 25 30

Tyr Ala Phe Ser Gln Ala Ser Glu Asp Ile Arg Lys Thr Phe Arg Leu  
35 40 45

Ser Ala Lys Ser Gly Glu Leu Leu Arg Gln Lys Leu Asp Phe Glu  
50 55 60

Ser Ile Gln Thr Tyr Thr Val Asn Ile Gln Ala Thr Asp Gly Gly Gly  
65 70 75 80

Leu Ser Gly Lys Ser Thr Val Ile Val Gln Val  
85 90

<210> 453

<211> 91

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin  
repeats domain sequence

<400> 453

Tyr Ser Ala Ser Val Pro Glu Asn Ala Pro Val Gly Thr Glu Val Leu  
1 5 10 15

Thr Val Thr Ala Thr Asp Ala Asp Leu Gly Pro Asn Gly Arg Ile Phe  
20 25 30

Tyr Ser Ile Leu Gly Gly Gly Pro Gly Gly Trp Phe Arg Ile Asp Pro  
35 40 45

Asp Thr Gly Asp Leu Ser Thr Thr Lys Pro Leu Asp Arg Glu Ser Ile  
50 55 60

Gly Glu Tyr Glu Leu Thr Val Leu Ala Thr Asp Ser Gly Gly Pro Pro  
65 70 75 80

Leu Ser Gly Thr Thr Thr Val Thr Ile Thr Val

85

90

&lt;210&gt; 454

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 454

Tyr Thr Leu Phe Val Arg Glu Asn Asn Ser Pro Ala Leu His Ile Gly  
 1 5 10 15

Ser Val Ser Ala Thr Asp Arg Asp Ser Gly Thr Asn Ala Gln Val Thr  
 20 25 30

Tyr Ser Leu Leu Pro Pro Gln Asp Pro His Leu Pro Leu Ser Ser Leu  
 35 40 45

Val Ser Ile Asn Ala Asp Asn Gly His Leu Phe Ala Leu Arg Ser Leu  
 50 55 60

Asp Tyr Glu Ala Leu Gln Ala Phe Glu Phe Arg Val Gly Ala Thr Asp  
 65 70 75 80

Arg Gly Ser Pro Ala Leu Ser Ser Glu Ala Leu Val Arg Val Leu Val  
 85 90 95

Leu

&lt;210&gt; 455

&lt;211&gt; 92

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Cadherin  
 repeats domain sequence

&lt;400&gt; 455

Tyr Ser Ala Ser Val Pro Glu Asn Ala Pro Val Gly Thr Glu Val Leu  
 1 5 10 15

Thr Val Thr Ala Thr Asp Ala Asp Leu Gly Pro Asn Gly Arg Ile Phe  
 20 25 30

Tyr Ser Ile Leu Gly Gly Gly Pro Gly Gly Trp Phe Arg Ile Asp Pro

35                      40                      45  
 Asp Thr Gly Asp Leu Ser Thr Thr Lys Pro Leu Asp Arg Glu Ser Ile  
     50                      55                      60  
 Gly Glu Tyr Glu Leu Thr Val Leu Ala Thr Asp Ser Gly Gly Pro Pro  
     65                      70                      75                      80  
 Leu Ser Gly Thr Thr Thr Val Thr Ile Thr Val Leu  
                     85                      90

<210> 456  
 <211> 85  
 <212> PRT  
 <213> Homo sapiens

<400> 456  
 Val Pro Arg Ala Ala Glu Pro Gly Tyr Leu Val Thr Lys Val Val Ala  
     1                      5                      10                      15  
 Val Asp Gly Asp Ser Gly Gln Asn Ala Trp Leu Ser Tyr Gln Leu Leu  
                     20                      25                      30  
 Lys Ala Thr Glu Pro Gly Leu Phe Gly Val Trp Ala His Asn Gly Glu  
                     35                      40                      45  
 Val Arg Thr Ala Arg Leu Leu Arg Glu Arg Asp Ala Ala Lys Gln Arg  
     50                      55                      60  
 Leu Val Val Leu Val Lys Asp Asn Gly Glu Pro Pro Arg Ser Ala Thr  
     65                      70                      75                      80  
 Ala Thr Leu His Val  
                     85

<210> 457  
 <211> 85  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Cadherin  
       repeats domain sequence

<400> 457  
 Val Pro Glu Asn Ala Pro Val Gly Thr Glu Val Leu Thr Val Thr Ala

1	5	10	15
Thr Asp Ala Asp Leu Gly Pro Asn Gly Arg Ile Phe Tyr Ser Ile Leu			
20	25	30	
Gly Gly Gly Pro Gly Gly Trp Phe Arg Ile Asp Pro Asp Thr Gly Asp			
35	40	45	
Leu Ser Thr Thr Lys Pro Leu Asp Arg Glu Ser Ile Gly Glu Tyr Glu			
50	55	60	
Leu Thr Val Leu Ala Thr Asp Ser Gly Gly Pro Pro Leu Ser Gly Thr			
65	70	75	80
Thr Thr Val Thr Ile			
85			

<210> 458  
 <211> 91  
 <212> PRT  
 <213> Homo sapiens

<400> 458
Ile Leu Glu Ser Thr Leu Pro Gly Thr Val Ile Pro Leu Gly Asn Ala
1 5 10 15
Glu Asp Leu Asp Val Gly Arg Asn Ser Leu Gln Asn Tyr Thr Ile Thr
20 25 30
Pro Asn Ser His Phe His Val Pro Thr Arg Ser Arg Arg Asp Gly Arg
35 40 45
Lys Tyr Pro Glu Leu Val Leu Asn Arg Ala Leu Asp Arg Glu Glu Gln
50 55 60
Pro Glu Ile Arg Leu Thr Leu Thr Ala Leu Asp Gly Gly Ser Pro Pro
65 70 75 80
Arg Ser Gly Thr Ala Leu Val Arg Ile Glu Val
85 90

<210> 459  
 <211> 87  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin  
repeats domain sequence

<400> 459

Val Pro Glu Asn Ala Pro Val Gly Thr Glu Val Leu Thr Val Thr Ala  
1 5 10 15

Thr Asp Ala Asp Leu Gly Pro Asn Gly Arg Ile Phe Tyr Ser Ile Leu  
20 25 30

Gly Gly Gly Pro Gly Gly Trp Phe Arg Ile Asp Pro Asp Thr Gly Asp  
35 40 45

Leu Ser Thr Thr Lys Pro Leu Asp Arg Glu Ser Ile Gly Glu Tyr Glu  
50 55 60

Leu Thr Val Leu Ala Thr Asp Ser Gly Gly Pro Pro Leu Ser Gly Thr  
65 70 75 80

Thr Thr Val Thr Ile Thr Val  
85

<210> 460

<211> 86

<212> PRT

<213> Homo sapiens

<400> 460

Ile Pro Glu Asn Ser Gly Glu Thr Val Leu Ala Val Phe Ser Val Ser  
1 5 10 15

Asp Leu Asp Ser Gly Asp Asn Gly Arg Val Met Cys Ser Ile Glu Asn  
20 25 30

Asn Leu Pro Phe Phe Leu Lys Pro Ser Val Glu Asn Phe Tyr Thr Leu  
35 40 45

Val Ser Glu Gly Ala Leu Asp Arg Glu Thr Arg Ser Glu Tyr Asn Ile  
50 55 60

Thr Ile Thr Ile Thr Asp Leu Gly Thr Pro Arg Leu Lys Thr Lys Tyr  
65 70 75 80

Asn Ile Thr Val Leu Val  
85



<210> 461  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 461  
atgtgatctt tggctgtgaa gt

22

<210> 462  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 462  
ctaccccatg gcctccatcg agt

23

<210> 463  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 463  
ggatgtccaa gccatcctt

19

<210> 464  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 464  
ctgcaaccac atgatcatatc aa 22

<210> 465  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 465  
atcaggaac ctgaccacac ttgtaa 26

<210> 466  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 466  
atggatgaag acatgctcct tt 22

<210> 467  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 467  
actggtgctg aagatcatga gt 22

<210> 468  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 468

cacctttgca cctatctctg accggt

26

<210> 469

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 469

aggctccagg ctgagtagac t

21

<210> 470

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 470

tacgagaact tcctggaaga ca

22

<210> 471

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 471

aagcccttat gaccgcatg gaatat

26

<210> 472  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: PCR Primer  
           sequence  
  
 <400> 472  
 attacagcgc ttttgatga a 21  
  
 <210> 473  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: PCR Primer  
           sequence  
  
 <400> 473  
 acaaggatcat ggaggaattc at 22  
  
 <210> 474  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: PCR Primer  
           sequence  
  
 <400> 474  
 agctttctca ggaccctgcc cgt 23  
  
 <210> 475  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: PCR Primer  
           sequence

<400> 475  
tgggtaacgt ccaggaagat 20

<210> 476  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 476  
acaaggtcac ggaggaattc at 22

<210> 477  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 477  
agctttctca ggaccctgcc cgt 23

<210> 478  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 478  
tgggtaacgt ccaggaagat 20

<210> 479  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 479  
 cctcatcctt ttcattgttca ga 22

<210> 480  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 480  
 actcctcagt accggttccg gaagag 26

<210> 481  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 481  
 gccgtaaaac atcactttgt ct 22

<210> 482  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 482  
 cctcatcctt ttcattgttca ga 22

<210> 483

<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 483

actcctcagt accggttccg gaagag

26

<210> 484

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 484

gccgtaaaac atcactttgt ct

22

<210> 485

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 485

cagggtcgaa tctggaatgg

20

<210> 486

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 486

tctggcttca gctatcaggg caccc

25

<210> 487

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 487

cccgatcatcc gtttccaat

19

<210> 488

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 488

gctccttcta cttcgccatc

20

<210> 489

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 489

tcatactac catcgagtac ggccac

26

<210> 490

<211> 19

<212> DNA

<213> Artificial Sequence

<220>



<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 490

acatgcagaa gaccttgcc

19

<210> 491

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 491

acagactccc agatggtgtc t

21

<210> 492

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 492

ctcctccaag gagcctcact gctgag

26

<210> 493

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 493

ggctgccttc aatagtaaca ga

22

<210> 494

<211> 19

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 494  
caagtacggt gagcccaa

19

<210> 495  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 495  
ctgtccctgg gacaccagct ggt

23

<210> 496  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 496  
caggttgacg taggtgaaga tg

22

<210> 497  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 497  
gaagatgtct gtgcaccgga t

21

<210> 498  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 498  
cacccatcca gactttgaga agctccac

28

<210> 499  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 499  
catggcaatg tcactcccaa

20

<210> 500  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 500  
attgacttct ggaagccaga tt

22

<210> 501  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer

sequence

<400> 501  
tgtcacacaa atcaaacctc acagtaca 28

<210> 502  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 502  
cttctgcttt aacacggaag tc 22

<210> 503  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 503  
tggtggtaga cctgcttctg 20

<210> 504  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 504  
gacctacgtt accacctgca gcagaa 26

<210> 505  
<211> 20  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 505

ctcactgtgt cctcggagaa

20

<210> 506

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 506

ctggtacgga ttgaagttgt g

21

<210> 507

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 507

catcaatgac aacgtcccag agtt

24

<210> 508

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 508

gttccaatgt ctaaaccct g

21

<210> 509  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 509  
attgcacggg agaatatca aa

22

<210> 510  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 510  
ccaagggccca agagaatatc cgaact

26

<210> 511  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 511  
tcacattcta gcaaaccat tc

22

<210> 512  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 512  
tgccctagca tcagttgaag

20

<210> 513  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 513  
tggaatgaaa catgaagatg cagtaca

27

<210> 514  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 514  
tttaaaagct ccactccgct

20

<210> 515  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 515  
ccctgaagcc tgacagtgt

19

<210> 516  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 516

ctgcagtgtc ccagagtgga cctctt

26

<210> 517

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 517

tgtggtcagg tgcatgtaga ta

22

<210> 518

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 518

ccccttctac aacttccaag ac

22

<210> 519

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 519

caacaaataa cactgtgact ccaacctca

29



<210> 520  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 520  
aaggtagact ttcgcacagg tt

22

<210> 521  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 521  
cccagtttcc actcactcat ta

22

<210> 522  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 522  
acagtgtctt tggccctgca tgt

23

<210> 523  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 523  
acaggatata gaccccaaatt gg

22

<210> 524  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 524  
gcctgcctta tctttctgaa ct

22

<210> 525  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 525  
ctttcctgcc cctgaggaag tcaatt

26

<210> 526  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 526  
cactcagctt gatcttcttc gt

22

<210> 527  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 527  
 accagctcca aggaacatg 19

<210> 528  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 528  
 tccatttctt gtgaaaattc cgaaga 26

<210> 529  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 529  
 ttctataacc cagtccttc a 21

<210> 530  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR Primer  
 sequence

<400> 530  
 agtggtgatg ggaaaatgat ga 22

<210> 531

<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 531  
ccataagaac agaaagttct ttccaggaca

30

<210> 532  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 532  
ccccagcttg aaggagatc

19

<210> 533  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 533  
ccagatcctt tctccttgat ct

22

<210> 534  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 534

ccaaactttc cagatctttc caaagctg

28

<210> 535

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 535

tgacctggat atttgattc tg

22

<210> 536

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 536

acctgctgaa ggaactcact ct

22

<210> 537

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 537

ctcacaggac gaggtagctg ccttct

26

<210> 538

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer  
sequence

<400> 538

gcaaaagtgc ttctcacta tg

22

<210> 539

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22

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20